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The

ILLINOIS

Medical Journal

VOL. 84 NO. 5

November, 1943

In This Issue

Convulsions in Childhood

Tumor Diagnostic Services in Illinois

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OFFICIAL JOURNAL OF THE ILLINOIS STATE MEDICAL SOCIETY

"EXPOSED" TO MULTIPLE VITAMIN DEFICIENCY

IN addition to the individual whose diet is poor, many persons whose dietary is adequate are exposed to multiple vitamin deficiencies because of:

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November 1943
VOL. 84, NO. 5

The Illinois Medical Journal

Official Journal of the Illinois State Medical Society

EDITOR — Harold M. Camp. EDITORIAL BOARD — James H. Hutton, Chairman, Frederick H. Falls, Josiah J. Moore, Edwin M. Miller, Chauncey C. Maher, Harry S. Gradle, Harry Culver, Walter Stevenson, Raymond W. McNealy.

Editorials

AN UNJUST CRITICISM

The journal of the American Medical Association under date of Saturday, October 9, 1943, published an editorial entitled "Council Standards and Medical Advertising" in which was told in some detail, the establishment of the Council on Pharmacy and Chemistry by the American Medical Association some thirty-five years ago. The article stated that "The Journal of the American Medical Association under the direction of the board of Trustees, limits its acceptance of advertising to products that have been accepted by the Council. Most of the State Medical Journals and several independent medical journals also restrict their acceptances of advertising similarly."

Reference was made in the editorial to the "throw-away" publications which are sent free to all physicians because their support comes from advertising which could not be accepted by journals of recognized scientific origin and merit. Then the following statement appeared in the editiorial: "The journals of two state medical societies, Illinois and New York, have been conspicuous almost from the first in their insistence on the profits to be derived from the publications of advertisements of unaccepted products."

Also in the editorial appeared the following statement: "The Illinois and New York journals continue to be vertiable directories of unestablished and unscientific therapy . . . . Can the physicians of Illinois and New York and the representatives of a few states who are urging a breakdown of the Council standards believe that the business managers of their periodicals are better equipped to judge what is good in materia medica and therapeutics than is the Council on Pharmacy and Chemistry?"

It is insinuated that the business managers of the Illinois and New York journals, as well as some others, are urging the governing bodies of their respective societies to depart from the standards of the Council, and that they might well give more consideration to their responsibility to scientific medicine.

We can speak only for the Illinois Medical Journal in commenting on this editorial, and we can give some facts to our readers to which we believe they are entitled, especially if they read the editorial in the Journal of the American Medical Association in which the above statements appeared.

1. The Illinois Medical Journal is published under supervision of the Council of the Illinois State Medical Society. Each year a highly capable Journal Committee is appointed and is given some specific instructions as to its functions, one of which is the acceptance or rejection of prospective advertisements.

2. For approximately three years this Journal has had an Editorial Board which likewise has given much consideration to all materials which have gone into the Illinois Medical Journal, and its policies have been discussed in detail at regular meetings.

3. At the time these new policies were adopted subject to the approval of the Council there were a number of advertisements appearing in the Journal which were discontinued. In all, some twelve or more advertisements have been eliminated during the past two years.

4. The Journal Committee, Editorial Board, and the Council have not approved the acceptance of any liquor advertisements although they have appeared in many other medical publications including some of those which are members of the Cooperative Medical Advertising Bureau.

5. During the past two years dozens of prospective advertisers who have desired in some instances, a full page or more in each issue of the Illinois Medical Journal have not been approved.

6. Several advertisements have appeared recently in journals which are members of the Cooperative Medical Advertising Bureau, which have been rejected by the Illinois Medical Journal.

7. The business manager of the Illinois Medical Journal has invariably done two things before signing a contract with a new advertiser in conformity with instructions given him when he assumed this position.

a. All companies desiring to advertise in the Illinois Medical Journal must submit the copy they desire to have published, and this is promptly referred first to an official of the Cooperative Medical Advertising Bureau of the American Medical Association who gives his impression as to the company and the product.

b. Then, if no objectionable information has been received, it is promptly sent to each

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State Society will pay no bills for legal services except those contracted by the Committee. Notify the Chairman at once. Do not employ attorneys.

Send advertising copy, cuts and all communications relating to advertising to ILLINOIS MEDICAL JOURNAL, 30 N. Michigan Avenue, Chicago.

Original articles and membership correspondence to Dr. Harold M. Camp, Monmouth, Ill.

Society proceedings and news items and changes in the mailing list to Managing Editor, 30 N. Michigan Ave., Chicago 2, Illinois.

Subscription price of this JOURNAL to persons not members of the Illinois State Medical Society is $3.00 per year, in advance, postage prepaid, for the United States, Cuba, Porto Rico, Philippine Islands, Hawaiian Islands and Mexico. $4.00 per year for all foreign countries included in the postal union. Canada, $3.50. Single current copies, 50 cents.

member of the Journal Committee who is asked to give it serious consideration and submit individual opinions as to its acceptability.

It is not the desire of those responsible for for the publication of the Illinois Medical Journal to see how much revenue can be procured through advertising, and it would be possible if no provisions were made for a careful selection of prospective advertisers, to carry perhaps twice as many pages of advertising as is the case at the present time.

The Illinois State Medical Society, its Council and others interested in this Journal heartily approve the fine work which has been done by the Council on Pharmacy and Chemistry, of which group the Editor of the Journal of the American Medical Association is a member. We realize also that many products now on the market which have had their real value properly tested scientifically, have never been submitted to the Council for approval, yet their value as medicaments is not lessened through this lack of approval.

We have been told that some products are refused approval principally because the name given to the product by the manufacturer is objectionable to the Council. Until the name is changed to conform to the critical demands of the Council it remains unaccepted. This too, does not lessen the therapeutic value of the preparation.

Since December 7, 1941 the Illinois State Medical Society has been chiefly interested in the war, and has made every effort to do its part in the defense of our country, and to bring the war to a successful conclusion. Illinois has done its part in responding to the repeated calls for physicians to join the Armed Forces, and is still endeavoring to provide additional medical officers and give wartime medical care to essential workers and civilians at home. We have endeavored in the columns of the Illinois Medical Journal each month, to present to our readers, many of whom are with the Armed Forces, information which it is believed will be of greatest interest to all readers of the Journal.

We do not believe that the criticism given the Illinois Medical Journal in the editorial referred to above was either timely or justifiable, and this refers especially to the statement: "The Illinois Journal continues to be a veritable directory of unestablished and unscientific therapy." The policies adopted by this Journal have been approved by the House of Delegates of the Illinois State Medical Society. The Council which is responsible for its publications, will gladly welcome suggestions for improvement of the Journal and likewise constructive criticisms of its policies.

THE ROLE OF PLASMA IN MODERN WARFARE

Those who are familiar with the medical problems in connection with the present war are invariably stating that the health of the United States Army is better than that of any similar force anywhere and that the medical corps of the United States Army and Navy are superior to those of other armies. It is generally admitted that the low mortality from the many casualties in the present war is due to the use of plasma, the ability of the surgeons in service and the use of the sulfonamides. Major General Norman T. Kirk, Surgeon General of the U. S. Army, has stated that while in North Africa at the close of the campaign, General Eisenhower told him that without the services of the fine medical officers on duty throughout North Africa, the successful results would not have been possible.

Through the Ameican Red Cross millions of Americans are giving blood which is sent immediately to one of the selected processing laboratories where plasma is procured and prepared for shipment to any part of the world. Plasma, fortunately, can be given almost anywhere — on ships, in ambulances, at first aid stations, or even in the field where the injured man has fallen. Thus plasma is usually given when indicated within a short time after the injury has been received. This has unquestionably been a very important factor in the statistical reports which are so greatly improved over those of the last war.

To the present time the mobile units of the American Red Cross which are equipped to procure blood from donors have only made the larger cities. There are many millions of peo-

ple throughout the country willing to make their donations regularly but have not as yet had the opportunity. In the larger cities where permanent quarters for making blood donations are maintained, provisions are available to give a more careful consideration to donors, for many times people who should not donate the usual 500 cc of blood on account of anemia or some other illness, are calling at these headquarters and insisting that they be accepted as donors.

Consideration should be given to the donor, and it is stated that many willing to give blood as a patriotic duty are not accepted after the necessary examinations have been made. It is generally known that the giving of 500 cc of blood on the part of the average healthy individual will do no harm, and that within a relatively short time the hematopoetic system will completely restore the blood count and hemoglobin to normal. This is especially true if the donor pays proper attention to diet, rest, and other important factors. Reports have been broadcast showing that some healthy individuals have donated blood several times and appear at regular intervals to make further donations.

With the ever increasing number of men in the field it is quite obvious to all that more blood will be needed each year the war continues. Eventually some plan should be developed whereby the rural areas and small town residents may likewise do their part for their country and its fighting men by donating blood.

One of the important factors in processing blood is that it must be received at the processing laboratory within 24 hours from the time it is taken from the donor. It must be transported under proper conditions, and there are but few parts of this country with our present transportation facilities where these requirements can not be met properly.

The American Red Cross which has been given the responsibility of procuring blood from donors and properly transporting it to the processing laboratories, is doing many things in this time of war which make this organization worthy of all consideration. It is therefore very important that every loyal American respond freely each time the call comes for donations to the Red Cross, and aid materially in making it possible that these many services can be continued until the successful end of this world wide conflict is reached.

CHICAGO OFFERS OPPORTUNITIES FOR POST-GRADUATE STUDY

The Post-Graduate and Sicentific Service Committees of the Illinois State Medical Society are pleased to announce the following information for doctors of the Society who may be in Chicago and wish to spend the time in study.

1—The University of Chicago — Department of Obstetrics and Gynecology, The Chicago Lying-In Hospital, 5841 Maryland Avenue —

"Obstetric and gynecologic lectures are given from 8:00 to 9:00 A. M. from Monday through Saturday. Obstetric lectures are also given from 12:00 noon to 1:00 P.M. on Wednesday, and a staff conference is also held at 4:30 P. M. on Wednesday.

"Clinics from 10:00 to 12:00 and from 2:00 to 4:00 are held every day except Saturday afternoon. There is a contraceptive clinic Wednesday afternoon, lower genital tract infections clinic on Thursday morning, endocrine clinic Thursday afternoon and toxemia clinic Friday morning.

"Doctors are always welcome. They are asked to bring some identification proving that they are doctors of medicine."

2—The Children's Memorial Hospital, 707 Fullerton Avenue, Chicago —

"Clinicopathological conference each Wednesday noon from 12:00 to 1:00 and on Monday mornings courses in pediatrics to senior Northwestern students from 8:30 to 11:30. Visiting doctors would be welcome at any of these meetings."

3—The Presbyterian Hospital of the City of Chicago, 1753 West Congress St.

"The following five clinics or conferences may be of very real value to the members:

Pathology Conference — Wednesday — 2:00 to 3:00 P. M. — No. Amph.

Cardiac Clinic — Tuesday and Friday — 9:00 to 11:00 A. M. — 4th Floor Rawson Bldg.

Metabolism Clinic — W. O. Thompson — Monday and Thursday — 9:00 to 11:00 3rd Floor, Rawson Building

Electrocardiogram Lectures — I. Treiger — 8:00 to 9:00 — 4th Floor, Rawson Building

Lectures on Fractures — Kellogg Speed — Friday — 9:00 to 10:00 — No. Amph. (Autumn Quarter Only).

Lectures in Surgical Anatomy — A. Verbruggen — Thursday — 10:00 to 12:00 — North Amph. (Autumn quarter only)

4—University of Illinois College of Medicine, 1853 W. Polk Street, Chicago —

In Anesthesia the following is made available:

1. Twelve lectures are given to the third year medical students, and these are tentatively scheduled to start Thursday, January 6, 1944, and to continue for twelve Thursdays. They will probably be held from eight till nine A. M. in room 106.
2. We hold an Anesthesia Staff Meeting nearly every Wednesday night from seven P. M. until about 9 P. M. These meetings are held just now in room 173 in the hospital. Interesting cases are discussed. Any outsiders who wish to attend one of these staff meetings should communicate with this department by telephone beforhand, first because the meetings are sometimes cancelled, and second we cannot accommodate many unexpected guests.

In the Department of Dermatology, we have clinical demonstrations to sections of students each afternoon, except Saturday, from 2:00 until 4:00 P.M. and we have a clinical presentation to the entire senior class each Thursday afternoon from 4:00 until 5:00 P.M. In addition, there is a series of didactic lectures on Dermatology given to the junior class from 4:00 until 5:00 P.M. each Monday.

There is always room for additional people and we do welcome them, although, these are the regular classes designed for undergraduates but I'm sure time and space can and will be made available for this purpose.

The Department of Laryngology, Rhinology, and Otology offers the following:

Senior Clinic in Otolaryngology — Mondays from 4:00 to 5:00 P.M., throughout the year.

Departmental Seminar — Wednesday from 4:00 to 5:00 P.M., October through May.

Junior lecture in Otolaryngology — Wednesdays from 8:00 to 9:00 A.M., throughout the year.

The Department of Medicine presents clinics and lecture courses which members of the Society may attend:

Tuesday — 8:00 to 9:00 — Diagnostic Clinic, Dr. Fred Sloan, Room 106 Medical and Dental College Building

Friday — 5:00 to 6:00 — Diagnostic Clinic, Dr. Jacob Meyer, Medical Amphitheater, Cook County Hospital

Monday — 8:00 to 9:00 — Gastrointestinal Diseases, Dr. Sidney A. Portis, Room 106 M&DCL Bldg.

Friday — 1:00 to 2:00 — Heart Disease, Dr. Frank B. Kelly 106 M&DCL Bldg.

Thursday — 5:00 to 6:00 — Tropical Medicine, Dr. Carroll L. Birch, Room 106 M&DCL Bldg.

The only teaching activities in the Department of Neurology and Neurological Surgery open to the general medical profession are the operations. These occur almost daily in the mornings at the Illinois Neuropsychiatric Institute, 912 S. Wood Street, Chicago, and prospective spectators may obtain details from day to day by telephoning Monroe 3900 and asking for extention 529.

It has been the policy of the Obstetrical and Gynecological Deparment to cooperate in every way possible with graduate education for the physicians of Illinois. To this end we have devised a two weeks course which will include lectures, ward walks, out-patient clinical demonstrations, and instruction in both obstetrical and gynecological operative work. Through application to the State Health Department the expenses of a student for such instruction may be paid from Federal funds allocated to this purpose.

Lectures in Obstetrical and Gynecological Department:

Monday Morning 8 to 10 — Gynecology, Cook County Hospital — 8th Floor

Wednesday Morning 8 to 9 — Obstetrics, Research Hospital — Room 106

2 Week Course in Obstetrics and Gynecology, Research and Educational Hospitals

The Orthopaedic Department submits the following information:

1. Lecture given to the Junior Class on Saturday morning from 8 to 9 o'clock, Room 106 — (Dr. Chandler)

2. Clinical Conference from 9 to 10:30 o'clock on Saturday morning, B-1, Orthopaedic Building.
3. Grand Rounds (ward visits) on Tuesday morning from 8 to 10 o'clock
4. Surgery from 8 to 12 o'clock on Thursday morning (Dr. Chandler)

We shall be very glad to have any visitors of the Profession join with us at these periods.

In the Department of Pathology the following clinics are open to all members of the Chicago and Illinois State Medical Societies:

Clinical-Pathologic Conference — Monday, Thursday and Friday, 12:00 to 1:00 P.M.

Surgical-Pathologic Conference — Tuesday, 12:00 to 1:00 P.M.

Neuro-Pathologic Conference — Monday, 1:00 to 2:00 P.M.

All of these conferences are held in the new Autopsy Amphitheatre, Room No. 477, 808 South Wood Street.

The Department of Pediatrics lists the following clinics and lecture courses:

Clinics on Ward — 9 to 12 daily, except Saturday — Municipal Contagious Hospital, 3026 S. California Ave. — Dr. Ralph Spaeth, Instructor

Clinic — 9 to 10 Monday — Room 735, Cook County Children's Hospital — Dr. L. E. Bower

Clinic — 9 to 10 Tuesday, Ward 51, Cook County Hospital "Management of the Newborn" — Doctor A. H. Parmelee

Clinics on Ward (Pediatrics, 2-East) — Research and Educational Hospital — each afternoon, except Saturday, from 2 to 4 o'clock

Seminars — 2 to 4 o'clock — Monday, Wednesday and Friday — Room 367 New Dental Building

Clinics — 10 to 12 o'clock Saturday — Doctor Grulee and Pediatric Staff, Presbyterian Hospital, North Amphitheatre, 6th Floor (this quarter)

University of Illinois, Room 106 (next quarter) Doctors Hess and Poncher

It has been suggested by the Department of Psychiatry that physicians interested in clinics, lecture courses, or seminars in psychiatry may apply to the Head of this Department for permission to attend such classes and conferences. The under-graduate class program varies a good deal from quarter to quarter. The seminars are offered during the Fall, Winter, and Spring quarters on Wednesdays from 3:00 to 5:00 P.M. and Saturdays from 10:00 to 12:00 noon.

The Department of Radiology invites the Society and its members to attend inter-departmental meetings held on the first and third Fridays of each month at which time unusual cases are presented for discussion from the roentgenological viewpoint.

The Department of Surgery extends its invitation to physicians of the State to attend the surgical conferences held Tuesday, 12 to 1; and the hospital conference on Friday, 12 to 1:00 P.M. The refresher course might be of some interest also, since a discussion of surgical problems is the subject of conversation. We are always glad to have visitors in the operating rooms, which are in use mornings as well as afternoons except Saturday afternoon and Sunday.

"QUO VADIS"

"Whither are you going" cooing, prattling little chap? Gleefully you clap your baby hands as you push your home-made one mast sailboat across the tub of water — your own private ocean. Out it goes, back it comes at the pull of your string. Master of your own destiny. Life is simple, is it not?

"Whither are you going" my little man, with your school books dangling from a strap, and your top swinging in the palm of your free hand? Still care free, are you not, a creature of instinct, unconsciously following a plan, apart from the world and yet a part of it. Still sailing your toy ship, but already others are pulling and guiding its Course.

"Whither are you going" you stalwart youth in full possession of all your physical and mental faculties? Does that tilt of your chin and your furrowed brow bespeak minor battles — some lost, some won? There is confusion in your face, vexation too, but purpose and determination in your eye! March on, my man, you are in the army now, the army of life. May God speed you and guide you, and guidance you need like never before. Find your path towards happiness!

Be tolerant and patient for a moment, oh youth, and harken to this homely message. Man is born with an insatiable desire to avoid pain, misery, suffering and want, and to achieve perfect happiness.

Even though through the years he senses that this is impossible, on and on he goes in his mad futile search for this Will o' the Wisp. The paths toward Peace are divergent.

Some follow the highways that lead to gold, to glory, to conquest, and some few tread the narrow trail of service, service to their God, service to their fellow man.

All roads if traveled doggedly, tenaciously and with forthrightness, converge to a common objective, ultimate peace and contentment. Which will you choose? Now, oh youth, is the appointed time for your decision!

"Whither are you going" man of maturity? Your jaw has lost its aggressive contour, your brow is wrinkled with care, the natural results of your battle with life. You sail your ship with difficulty now, for the ocean is no longer *your* ocean, but teems with craft — some friendly — others continuously crossing and recrossing your bow, harassing and endangering you at every turn. Possibly you should have taken a different, a wider track, bipassing this seething maelstrom, and sailing your ship on some smooth distant water in peace, and solitude? Does that look in your eye bespeak despair? Have you selected the wrong path towards happiness?

Ah, man of maturity. Again give heed to the voice of experience.

Sail on, sail on your ship of life, with grim determination! Unfurl your canvass, sweat you and labor! Surge forward and drive your ship into that vast armada. They will reach the shore and so must you. Let one important principle guide you — Sail by compass, but let your guiding beacons be Friendship, Fair Play, Justice and a Helping Hand to your neighbor in distress.

"Whither are you going" senile, toothless, decrepit old man? Too late, too late to ask that question now! Your ship has reached its harbor — Your life's work is done. Your face is lined with care. Your eyes are dimmed, but ah — they retain the faded smile that beamed from them as you pulled your home-made one master on a string.

So your life *was* worthwhile? And the light in your eyes is the projection of the memories of acts of kindness, of helpfulness to your neighbor? Well done, old Skipper! Rouse yourself to a final effort: Back on your ship, twine those gnarled old hands once more around your rudder and with tilted chin and a steadfast eye sail your ship courageously into the calm and peaceful harbor of eternity.

Robert S. Berghoff

AMERICAN MEDICAL ASSOCIATION COUNCIL ON MEDICAL SERVICE AND PUBLIC RELATIONS

The Council has authorized the publication of the following statement.

J. W. Holloway, Jr., Acting Secretary

A STATEMENT OF GENERAL POLICIES

Pursuant to carrying out the duties imposed on it by the House of Delegates, the Council has adopted the following general policies:

1. The Council on Medical Service and Public Relations recognizes the desirability of widespread distribution of the benefits of medical science; it encourages evolution in the methods of administering medical care, subject to the basic principles necessary to the maintenance of scientific standards and the quality of the service rendered.

It is not in the public interest that the removal of economic barriers to medical science should be utilized as a subterfuge to overturn the whole order of medical practice. Removal of economic barriers should be an object in itself.

It is in the public interest that the standards of medical education be constantly raised, that medical research be constantly increased and that graduate and post graduate medical education be energetically developed. Curative medicine, preventive medicine, public health medicine, research medicine, and medical education, all are indispensable factors in promoting the health, comfort and happiness of the nation.

2. The Council through its executive committee and secretary shall analyze proposed legislation affecting medical service. Its officers are instructed to provide advice to the various state medical organizations as well as to legislative committees concerning the effects of the proposed

legislation. It shall likewise be the duty of its officers to offer constructive suggestions to bureaus and legislative committees on the subject of medical service.

3. The Council approves the principle of voluntary hospital insurance programs but disapproves the inclusion of medical services in those contracts for the reasons adopted by the House of Delegates at the 1943 meeting.

4. The Council approves voluntary prepayment medical service under the control of state and county medical societies in accordance with the principles adopted by the House of Delegates in 1938. The medical profession has always been very much opposed to compulsory health insurance because (1) it does not reach the unemployed class, (2) it results in a bureaucratic control of medicine, and interposes a third party between the physician and the patient, (3) it results in mass medicine which is neither art nor science, (4) it is inordinately expensive, and (5) regulations, red tape and interference render good medical care impossible. Propaganda to the contrary notwithstanding, organized medicine in general, and the American Medical Association in particular have never opposed group medicine, prepayment or non-prepayment, as such. The American Medical Association and the medical profession as a whole have opposed any scheme which on the face of it renders good medical care impossible. That group medicine has not been opposed as such is evidenced by the fact that there are many groups operating in the United States which have the approval of the medical profession, and members of these groups are and have been officials in the national and state medical organizations. That group medicine is the Utopia for the whole population, however, is not probable. It may be and possibly is the answer for certain communities and certain industrial groups if the medical groups are so organized and operated as to deliver good medical care.

5. The Council believes that many emergency measures now in force should cease following the end of hostilities.

6. The Council believes that the medical profession should attempt to establish the most cordial relationships possible with allied professions.

7. There is no official affiliation between the American Medical Association and the National Physicians Committee. However, since it is the purpose of the National Physicians Committee to enlighten the public concerning contributions which American medicine has made and is making in behalf of the individual and the nation as a whole, it is the opinion of the Council that the medical profession may well support the activities of the National Physicians Committee and other organizations of like aims.

8. American medicine and this Council owe a responsibility to our colleagues who are making personal sacrifices to answer the call of the armed forces. Therefore, the Council expresses the desire to cooperate with the medical committee on post-war planning in order to assist our colleagues in reestablishing themselves in the practice of medicine, and in the preservation of the American system of medicine.

DIGESTIVE DISORDERS IN COMBAT AREAS

From experience with 200 patients admitted to a large hospital in the South Pacific because of "dyspepsia," Captain Alexander Rush, Medical Corps, Fifty-Second Evacuation Hospital, reports in *The Journal of the American Medical Association* for October 23 that "from a medical point of view the selectee who on the basis of his army general classification test gives indication of being a poor risk has been so proved while under the stress and strain of field conditions in the combat area." Fifty-three per cent of the patients were found to have functional disturbances of the digestive tract. No organic basis for their distress could be demonstrated. The greater number of these patients were in grades IV and V (slow and very slow learners) in the army general classification test. This bears out the impression that digestive disturbances of the functional type are seldom seen among bright, alert, well integrated persons, Captain Rush says.

Agar-agar, formerly obtained from Japanese and Chinese seaweed and used in the artificial cultivation of bacteria, is now a scarce material; the U. S. Bureau of Fisheries is searching for American agar-producing seaweeds. — Minnesota Medicine.

Correspondence

ANNOUNCE POST-GRADUATE COURSE IN INDUSTRIAL MEDICINE

A post-graduate course in industrial medicine and hygiene, presented under the auspices of the Committees on Industrial Health of the Illinois State Medical Society and the Chicago Medical Society and directed by the University of Illinois College of Medicine and the Division of Industrial Hygiene, Illinois State Department of Public Health, will be held in Chicago beginning January 4, 1944, and continuing for twelve weeks, one lecture being held each week. The complete program will be printed in the Industrial Health Section of the Illinois Medical Journal for December.

WARTIME IMMUNIZATIONS URGED BY STATE DEPARTMENT OF PUBLIC HEALTH

Whooping Cough. — Although the State's case reports of whooping cough from January through September this year have been about 35 per cent below the reported 1942 incidence for the comparable period, the fatality rate among 4,754 cases of whooping cough reported in Illinois during the first seven months of 1943 was almost 14 per 1,000, as against 8 per 1,000 among the State's 7,252 cases reported in those months last year.

It is advisable to begin the series of immunizing injections as early as possible after the age of six months. The material recommended for this immunization is pertussis vaccine prepared by the Kendrick and Eldering method, or by the Sauer method. Approved pertussis vaccine is available to Illinois physicians from the State Department of Public Health. As a rule it is best administered in three subcutaneous injections into the arms, given at intervals of three or four weeks.

Diphtheria. — Illinois case reports of diphtheria in the first nine months of 1943 have been about 21 per cent lower than they were in the like period of 1942, but from January through July the number of reported deaths ascribed to diphtheria in the State has gone up to 55 this year, as compared with 34 last year.

Immunization against this disease may be accomplished at any time after six months of age, and preferably before the age of one year. The toxoid is available to Illinois physicians from the State Department of Public Health. The Department does not at present recommend as a routine practice the "combined immunization" against whooping cough and diphtheria. Since unimmunized children under the age of ten years are usually susceptible to diphtheria, it is not necessary as a general thing to give them the Schick test (for susceptibility) before the course of immunizing injections against diphtheria. The preferred immunization methods for these young children involve either two or three subcutaneous injections of alum-precipitated toxoid, or three subcutaneous injections of fluid toxoid. When young children first enter school, they should have an additional fortifying injection of either fluid or alum-precipitated toxoid.

The advance Schick test, which shows in five or six days' time whether or not the person needs diphtheria immunization, is advisable for persons beyond the age of ten. The recommended immunization method for these older persons in-

volves three subcutaneous injections of fluid toxoid at monthly intervals.

Six months after any course of immunizing injections against diphtheria is given, the effect of the immunization should be checked by a Schick test. Persons who are found to be still susceptible to diphtheria at this time should receive another full course of immunizing injections.

Smallpox. — The last reported smallpox death on record in Illinois occurred in 1938, when the State had 965 case reports of this disease. The reported annual prevalence of smallpox in the State has been steadily reduced since then, but remains far short of the goal. In a number of eastern states there is year after year no smallpox reported at all. Yet Illinois had 46 cases reported in the first nine months of 1943, and 55 in the comparable period last year.

The first smallpox vaccination in a person's life should be performed before the age of one year. It may be done at the time of the administration of the final injection of diphtheria toxoid, and repeat-vaccinations for smallpox may be given at five-year intervals. The vaccine is available to Illinois physicians from the State Department of Public Health. The results of each smallpox vaccination should be determined by the physician two weeks after the vaccination is performed.

Typhoid Fever. — It is greatly to the credit of the medical and public health professions in Illinois that the cases and deaths reported of typhoid fever in the State have decreased steadily since 1939 in spite of war and floods. During the first seven months of 1942 there were 86 typhoid fever cases and 11 deaths reported in the State, and in the comparable 1943 period these totals were reduced to 76, and 7, respectively.

To maintain and improve this record it is recommended that travelers, persons living in flood areas or in congested war areas of uncertain sanitary status, and other persons who may be exposed to the typhoid fever hazard, should receive three subcutaneous injections of typhoid vaccine, a week apart. Single injections may be given annually thereafter to keep up the immunity. Typhoid fever vaccine is also available to Illinois physicians from the State Department of Public Health.

NAVY DOCTORS REMOVE LIVE SHELL FROM HIP OF WOUNDED ENLISTED MAN

(The following story was written by Technical Sergenat Jim Lucas of 2531 East 14th Place, Tulsa, Oklahoma, a Marine Corps Combat Correspondent.)

A South Pacific Marine Base — (Delayed) — Twenty-three-year-old Allen L. Gordon of Rock Island, Illinois, knew he was a human bomb.

Standing at his post aboard an American warship in the South Pacific, he had been struck below the left chest by a 20 millimeter antiaircraft shell which pierced his intestines and lodged in his left hip.

By freakish chance, the shell had not exploded.

When Gordon, a Fire Controlman, Third Class, was gingerly carried ashore at this island outpost on November 22, 1942, he could still grin at the corpsmen who served as his stretcher bearers.

Thus began one of the strangest stories of war surgery in this area, which culminated on December 2, 1942, when two Navy doctors, working behind steel plate, operated on an American sailor who might explode at any moment and removed the shell in his hip.

Although infection later set in, Gordon was strong enough eventually to return to the United States, where treatment continues.

Gordon's experience is not typical, yet it vividly underlines the safeguards thrown up to protect the lives of Marines and sailors in the war of the Pacific by the Navy's Mobile Hospital units.

When Gordon was brought ashore, after an emergency operation aboard a battleship to sew up his intestinal tract, the Navy's hospital at this island outpost was still under construction; had not yet received its first patients.

Under direction of Lieutenant Commander Harold W. Jacox, 4800 Friendship Ave., Pittsburgh, Pennsylvania, formerly on the staff of the Western Pennsylvania Hospital there, several days were spent locating the "dud" by x-ray. Lieutenant Commander Jacox and his corpsmen worked under great handicaps, because their equipment had not been set up. Using small, portable x-ray machines — "and working with the greatest of care" — they made plates while Gordon lay on his hospital cot.

Once the shell was located, steel plate was prepared and the operation was performed in a mat-

ter of a few minutes by Lieutenant Commander Jesse B. Griffith and Lieutenant William C. Wycoff, both from the Western Pennsylvania Hospital staff in Pittsburgh.

OFFICE OF THE LEGISLATIVE COMMITTEE

Dear Doctor

If the socialization of American Medicine which would result through the passage of the Murray-Wagner-Dingell Social Security bill is to be avoided, it is of the greatest importance, we believe, that not only the medical profession, but their patients as well, be made familiar with certain aspects of the bill.

Any literature for distribution to the average individual must of necessity be clear, concise and emphatic, otherwise it will either be thrown aside, or will not be understood. It is difficult to give even the high spots of such a program and still be brief, but we believe that a recent editorial in The Indianapolis Star, several reprints of which were sent to you, does an excellent job of summarizing for the layman, the bad features of the Bill. We urge you to see that these reprints reach your patients, and we will be glad to furnish as many additional copies as you may request. Just drop a penny post-card to this committee at 30 North Michigan Avenue, Chicago 2, Illinois, giving your name, address, and the number of copies you desire to distribute.

One other suggestion; the National Physician's Committee for the Extension of Medical Service has made similar arrangements for the distribution of its excellent 8 page folder entitled "$3,048,000,000.00 of Political Medicine yearly in the United States." A card to that committee at 55 East Washington Street, Chicago 2, Illinois, will bring you as many copies of that folder as you can use.

Time is short! This bill has not yet been set for hearing, but there is an excellent possibility that it will receive the attention of Congress before the end of the year.

Very truly yours,
John W. Neal
Executive Secretary
Legislative Committee

HODGKIN'S DISEASE IN DERMATOLOGIC AND GENERAL PRACTICE

The lymphoblastomas are tumors involving the hemopoietic lymphoid, and reticular systems.

This group is usually spoken of as the white blood dyscrasias. The cause of the various members of the lymphoblastoma group is that of malignant growths in general and is unknown.

It remains for those who defend the theory of infectious etiology to demonstrate transmission of an infectious agent. This group of diseases is still rather confusing. The clinical picture of leukemia and mycosis fungoides together with blood studies will usually yield a diagnosis.

The diagnosis of Hodgkin's disease and lymphosarcoma can seldom if ever be made without a gland biopsy, and even then it may be difficult to differentiate them.—George J. Busman, M.D. and John M. Johnston, M.D., Pittsburgh; Penna. Med. Jour., Vol. 46, No. 11, August, 1943.

CARE OF WOUNDED BY ARMY-NAVY MEDICAL SERVICE EXTOLLED BY SQUIBB IN SERIES OF ADVERTISEMENTS

The bravery and skill of the Army and Navy medical services and the marvelous new drugs that are saving the lives, rehabilitating the bodies and alleviating the pain of men wounded in action are extolled in a series of advertisements in national magazines sponsored by E. R. Squibb & Sons, manufacturing chemists.

Illustrated with authentic action photos from the Army and Navy, as well as posed pictures in training hospitals, the advertisements point out that 97 out of 100 men in evacuation hospitals during the North African campaign *didn't* die, that it's 37 to 1, based on present statistics, that men wounded in Navy action won't die, and that men wounded in action often are under skilled medical care within ten minutes after they are injured.

Three reasons are given, quoting Surgeon General of the Army, for so many lives being saved — blood plasma, skillful surgery and "sulfa" drugs, in that order. Attention is called to a product newer than plasma — human serum albumin — which is made from blood given at donor centers, but is less bulky, easier to ship and use, and responsible for amazing recoveries from shock and burns.

The advertisements appear under the generic title of "Miracles of the Battlefront," and are designed to acquaint the public with the heroic work of the medical services of the Army, Navy, Coast Guard and Marines, as well as call attention to some of the life-saving, pain-relieving drugs that are being used. The advertisements were planned and prepared with the cooperation of the medical services. Six insertions, extending into 1944, are scheduled in "The Saturday Evening Post," "Good Housekeeping," "Life" and "Hygeia."

Medicine's Role in the War Effort

CARE OF WIVES AND BABIES OF SERVICEMEN

The following announcement was made by the Office of War Information on September 29:

More than 200,000 additional wives and babies of servicemen will be able to receive maternity and infant care during the remainder of this fiscal year as a result of the additional funds which the Congress voted yesterday (Tuesday) to the Children's Bureau in a deficiency bill, Secretary of Labor Frances Perkins stated today (Wednesday.)

"Servicemen and their families have reason to feel gratified and reassured that Congress has acted so promptly to replenish the funds needed to continue the maternity and infant care program, initiated last March," Miss Perkins said.

"With the additional $18,600,000 now made available in deficiency appropriation by action of the House and the Senate within two weeks of their reconvening, there will be no interruption in this humanitarian service, which was threatened with termination through lack of funds.

"Since the first appropriation for this service made by Congress in March of this year forty-four states, the District of Columbia, Alaska and Hawaii have submitted plans for cooperation in this program to the Children's Bureau and have received approval from the bureau. Of the remaining four states, Colorado and Texas are at present working out plans; Louisiana and North Dakota have so far failed to submit plans.

"Cases of nearly 50,000 servicemen's wives and babies have been authorized for care between the time the first state, North Carolina, received approval of its plan on April 8 and September 1. At the rate at which state health departments are requesting funds, it appears that for the remaining months of this fiscal year care will be requested for 20,000 to 25,000 cases each month.

"All of us, citizens in general as well as servicemen and their families, owe a debt to the state health departments which have given devoted service, without any financial assistance from federal funds, to get this program working. A heavy burden of responsibility rests on these departments, which not only prepare basic plans of operation but carry the full administrative weight of the operation of the program within their states. The thousands of doctors who are caring for the wives and babies also deserve our enthusiastic commendation. For many of them this service imposes an extra claim on time that is already crowded. The spirit of cooperativeness and loyalty which physicians have shown has contributed in large measure to the reassurance our servicemen have a right to feel that we at home are providing adequately for the safe birth of their children."

An amendment passed with the deficiency appropriation, Miss Perkins pointed out, limits the program to wives and infants of enlisted men in the four lowest pay grades. Between July 1 and October 1 wives and infants of servicemen in the top three grades below commissioned officers were also covered. These are now barred.

To obtain care under this emergency maternity and infant care program a serviceman's wife selects the doctor, either a private practitioner or a clinic physician, whom she wishes to provide care, and obtains from him a simple application form. Her doctor completes the application and forwards it to the state health department or other public health agency which it may designate. Both the doctor or clinic and the patient are then notified of the approval of the application. Similar application can be made when medical care is needed by the baby during the first year of life. Applications can also be obtained from the local Red Cross chapters, hospitals or local health agencies. Payment for services is made by the state health department to the doctor or clinic and to the hospital, if one is used.

Complete maternity service is obtainable during the antepartum period, childbirth and six weeks thereafter, including care of complications, operations, postpartum examination and medical care for the newborn baby. Hospital care is paid for at ward rates whether patients are cared for in wards or other accommodations. The money cannot be used to pay part of the cost of luxury accommodations.

On the basis of latest reports from the states, the Children's Bureau indicates the total number of cases authorized in each state from the date of approval of state plans up to September 1 as follows:

Over 4,000: Illinois, May 8 (date when plan was approved).

From 2,000 to 3,000: North Carolina, April 8; Michigan, May 12; Wisconsin, May 14; Indiana, May 12; Oklahoma, April 27; Kansas, May 21; Kentucky, May 8; New Jersey, April 27.

From 1,000 to 2,000: Mississippi, April 19; Missouri, May 29; Minnesota, June 4; South Carolina, April 17; Arkansas, May 4; Maryland, April 9; Utah, May 8; West Virginia, April 24; Florida, June 3; Connecticut, May 14; Nebraska, June 3.

Under 1,000: California, June 30; Washington, May 28; New Mexico, April 20; Ohio, August 2; Maine, May 4; New York, June 30; Montana, June 3; Arizona, May 8; South Dakota, May 21; District of Columbia, June 22; Delaware, April 29; New Hampshire, June 8; Idaho, May 24; Nevada, April 27; Wyoming, April 30; Hawaii, May 31; Iowa, June 30; Virginia, July 22; Tennessee, July 21; Alaska, July 10.

No record of cases yet available from these cooperating states: Georgia, August 18; Massachusetts, August 30; Oregon, September 18; Pennsylvania, September 20.

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WAR SURGERY IN THE MIDDLE EAST

During the last nine months of 1942, 3,279 battle casualties were admitted to one military hospital on the lines of communication in the Middle East. Because of the enemy's rapid advance to El Alamein the arrival of wounded was so rapid that the hospital had to act as a casualty clearing station rather than as a base hospital. The mortality rate for the 300 casualties from Tobruk was 3 per cent and for the 500 casualties from the second battle of El Alamein it was 10 per cent. The mortality rate for 2,679 casualties from the first battle of El Alamein, when the hospital acted as a casualty clearing station, was only 1.3 per cent. The high mortality rate for the casualties from Tobruk and from the second battle of El Alamein is due to the fact that seriously ill patients were sent to the hospital. The figure 1.3 per cent is approximately accurate for most casualty clearing stations. In analyzing the results, Lieut. Col. R. K. Debenham[1] emphasizes that all of the wounds dealt with were a result of fighting in dry sandy desert, that the amount of clothing worn was very small so that only rarely was clothing found in a wound, and that sulfanilamide was used prophylactically. As a routine 10 Gm. was dusted into the wound and another 10 Gm. after operation; 5 tablets (2.5 Gm.) were given by mouth at 6 a. m. and 6 p. m. daily for four days. The good results obtained in abdominal cases, particularly in those with bowel perforation, were due to early operation. Of the 11 patients with bowel perforation, the 9 who recovered were operated on in forward areas and were kept there from five to sixteen days; the cardinal points seem to be early operation, late evacuation, intravenous saline drip, continuous gastric suction and sulfadiazine. This is difficult with mobile warfare but was possible when the line of battle was static. The worst cases of burns came from fighting in tanks. Because facilities for preliminary cleansing were not obtainable, tanning was discarded in favor of cleansing and powdering the area with sulfanilamide and dressing with petrolatum gauze. Patients traveled best with plenty of padding, and for wounds of limbs a light, well padded plaster of paris cast was definitely beneficial. In the early stages intravenous plasma or serum was considered essential. Blood transfusions were used for secondary anemia a week or ten days later. Patients with severe burns traveled badly, even up to two weeks after burning. After a long journey they arrived toxic and ill. It is easy to put too much sulfanilamide powder on the burns, especially in severe cases, as sulfanilamide is readily absorbed from burned areas and gives rise to profound toxemia. Blood and plasma or serum transfusions were used for shock, for burns and during convalescence when the hemoglobin fell below 60 per cent. Gas gangrene has been rare and gas infection uncommon. No case of tetanus has been seen. Among the "don'ts" to be observed are listed:

Don't suture wounds. Don't suture amputation stumps.

Don't amputate at the site of election; go below it.

Don't use packing except to stop hemorrhage.

Don't use drainage tubing.

Don't use unpadded plasters.

Don't forget to give morphine before a long bumpy journey.

Don't forget to give plenty of fluids by mouth.

1. Debenham, R. K.: War Surgery in the Middle East, Brit. M. J. 2: 233 (Aug. 21) 1943.

Don't forget that the ligature of a main vessel should be prominently recorded on the field medical card and underlined.

The salient features of war surgery in the Middle East are based on the principles which have been in the process of evolution since the beginning of the war. They are summarized as follows: organized resuscitation and the use of local and general sulfanilamide; thorough immobilization; conservative surgery and wound trimming instead of wound excision; avoidance of tension around wounds and provision of a good blood supply in damaged limbs, and the necessity to adapt and improvise articles to fulfil functions for which they were not intended.—*J.A.M.A., Oct. 2, 1943.*

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NATIONWIDE CAMPAIGN FOR QUININE

In a nationwide campaign which began seven months ago for the conservation of quinine for the armed forces, more than eleven million 5 grain doses of quinine have been collected and are now en route to army and navy fighting fronts. The campaign was supported by thousands of retail pharmacists, wholesale druggists and hospitals and exceeded its goal by nearly 50 per cent. More than sixteen thousand packages have been received at the National Quinine Pool, American Pharmaceutical Association, Constitution Avenue and Twenty-Second Street N.W., Washington, D. C. The quinine arrived in the form of powder, plain and sugar coated tablets, crystals and liquid and was of both foreign and domestic manufacture. The medical departments of the Army and Navy have assigned pharmacists to assort and classify the contributions, which will be accepted until October 15.

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PRISONER OF THE JAPANESE

According to the Chicago *Tribune* of August 12, Lieut. Amiel L. Palermo, formerly of Chicago, is a prisoner of the Japanese. A card received recently by his mother indicated that he is being held a prisoner in the Philippines in prison No. 1. Lieutenant Palermo graduated from the University of Illinois College of Medicine, Chicago, in 1940 and entered the service on July 5, 1941.

EXAMINATION DATES FOR CANDIDATES FOR MEDICAL CORPS, REGULAR ARMY

The War Department announced on September 7 that examinations for the purpose of qualifying candidates for appointment as first lieutenants in the Medical Corps, Regular Army, to fill vacancies occurring during the fiscal year 1945 will be held on Jan. 24 through Jan. 27, 1944. The examinations are open to all male citizens of the United States who are graduates of acceptable medical schools in the United States and Canada, who have completed one year's internship in an approved hospital and who will not be over 32 years of age at the time it will be possible to tender a commission. The examinations will be conducted by boards of medical department officers and will consist of a physical examination, a written examination in professional subjects and a determination of the candidate's adaptability for military service. Candidates who fail a first examination will not be permitted to take more than one subsequent examination.

Full information and application blanks will be furnished on request by the Adjutant General, War Department, Washington 25, D. C. Applications from candidates in the continental limits of the United States received after Jan. 7, 1944 will not be considered.

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NEW FLYING AMBULANCES

The first high speed flying ambulances for navy and marine corps use are either on their way across the sea or have reached combat zones. The plane is a small transport which will carry two wounded men in wire stretchers and a crew consisting of pilot, co-pilot and nurse, and can operate from bases as far as 200 miles from battle zones.

The new ship was christened on Navy Day, October 27, in honor of Florence Nightingale, the first war nurse and the inspirer of International Red Cross. Manufactured by the Howard Aircraft Corporation of Chicago and St. Charles, Illinois, it will be known as the Howard-Nightingale. The name Nightingale will be protected by trade mark and copyright laws in the same manner as the terms Flying Fortress, Liberator, Thunderbolt and others applying to war planes.

The christening ceremony was a notable one because of the participation of Sister Elizabeth Kenny, originator of the Kenny system for infantile paralysis treatment. The Australian nurse was profuse in her praise of the United States Navy for designing a special mercy plane in an era characterized generally by barbarism. It was pointed out at the ceremony that transportation of badly wounded men to base hospitals can further strengthen the life saving elements introduced in the war by this country. These elements recently listed were, in order: 1, blood plasma; 2, transportation of the wounded to fully equipped hospital units; 3, sulfa drugs; 4, improved surgical techniques.

The Howard-Nightingale will be capable of landing in almost inaccessible spots, picking up the wounded and carrying them swiftly to well equipped hospital units without shock or further injury to broken bones. The speed of the plane will be at least 2½ miles a minute.

One of the interesting features is a stretcher and stanchion design. The stretchers are formed of wire to the shape of a man's body and are 6 feet long inside. Each stretcher is surrounded by a carrying rail and can be handled by either two, three or four men. The patient is held rigidly in position. If necessary the plane can resort to dodging tactics without serious consequences to the casualties.

Navy officers interested in the Howard-Nightingale predicted that it would be a source of comfort and morale building both to men in combat and to navy families in this country.

The Nightingale series is known in navy language as the GH-2 and is a five-place, high wing, cabin monoplane with a 450 horse power engine and variable pitch propellers. The plane is a standard model of the Howard Aircraft Corporation adapted to the purpose for which the navy desired to use it. A special stretcher door opens on the right side, back of the cockpit door.

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AVIATION MEDICAL EXAMINERS

Graduation exercises were held at the School of Aviation Medicine, Randolph Field, Texas, on August 26 following completion of the course for aviation medical examiners. The didactic portion of the course was conducted at the School of Aviation Medicine, Randolph Field, Texas, and the practical portion of the course at the three army air forces classification centers. The list of students from Illinois graduating follows:

Raymond H. Abrams, 1st Lieut., Chicago; Marvin F. Austin, Major, Chicago; Ben H. Barbour Jr., 1st Lieut., Centralia; George W. I. Bard, 1st Lieut., Sheldon; Merrill C. Beecher, 1st Lieut., Knoxville; Carl A. Gebuhr, 1st Lieut., Evanston; John W. Gray, Captain, Geneva; Anton P. Huml, 1st Lieut., Peoria; Roland F. K. Jordan, Captain, Pekin; Herbert Kahan, Captain, Chicago; Emerson C. Kunde, Captain, Woodstock; Robert C. Long, 1st Lieut., Chicago; Cornelius E. Murphy, Captain, Chicago; Oliver Rian, Captain, East Peoria; Frederick J. Ricketts, Captain, Sadorus; Percy J. Ross, Major, Chicago; Lee H. Schlesinger, Major, Hines; Edward J. Schmehil, 1st Lieut., Chicago; Albert Sheade, 1st Lieut., Chicago; Everett L. Strohl, Major, Chicago; Charles R. Sugden, Captain, Deerfield; Sydney W. Tauber, 1st Lieut., Chicago; Scottie J. Wilson, 1st Lieut., Urbana.

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INTERN-RESIDENT PROGRAM FOR HOSPITALS

Considerable confusion seems to have arisen regarding the number of internships and residencies which may be maintained by hospitals under the new intern-resident program which has been made possible by the deferment of certain numbers of interns and residents holding reserve commissions in the Army and Navy.

To meet the minimum needs of hospitals nationally, twice as many residents as will be deferred by the Army and Navy will be required. The remaining half (those not deferred by the Army and Navy) must be made up of physically disqualified men and women in order to give the hospitals minimum adequate house staff coverage.

This program definitely does not state that a hospital may only, or will necessarily, retain one third of its interns to serve as junior residents, nor does it mean that a hospital may only, or will necessarily, retain one half of its junior residents as senior residents. These fractions were published to show the overall proportion of commissioned officers now under the jurisdiction of the Army and Navy who would be deferred by the military services to serve as one source of personnel for civilian hospital appointments.

The program does state that, generally speaking, hospitals will be able to retain about two thirds of their 1940 house staffs, provided there has been no pronounced decrease or increase in patient load since that time. This two thirds will comprise those ineligible for military service as well as those deferred by the Army and Navy.

The first fraction represents the proportion of deferments by the armed forces of commissioned officers (9-9-9). The second figure concerns the allocation — the combined deferred officers and those physically disqualified — to the hospitals (approximately 66 2/3 per cent of the 1940 staff). Each hospital should procure as many physically disqualified men as possible, and only the remainder unable to be procured from this source can be obtained from those deferred by the Army and Navy.

The hospital questionnaires, which the Procurement and Assignment Service urgently requests hospitals to return, will give the needed information to determine a general basis for estimating the number of interns and residents which each hospital should have on the basis of the 1940-1942 house staff. There will probably be some necessary changes in individual hospitals which have peculiar or particular problems, but the formula will apply to all general hospitals.

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DOCTORS OPERATE UNDER SHELLFIRE

Following is a dispatch as printed in the Chicago *Sun*, September 24, from the United Nations Headquarters in North Africa:

Three delicate operations of brain surgery were performed successfully in a tent among the sand dunes of Salerno during the critical days when the Germans had the entire Fifth Army bridgehead under artillery fire, it was revealed today.

Lieut. Col. Paul K. Sauer of New York Hospital took his contingent ashore amid a rain of German lead.

Exhausted by two days and night of bombing, strafing and mortar fire, the men of the evacuation hospital finally organized their scattered equipment and spent all night setting up portable operating rooms and tent walled wards on a field not far inland. Then the tired staff began a twenty-four hour schedule of operations and treatment.

Major Howard A. Patterson of New York, former surgeon at Roosevelt Hospital and a veteran of the Tunisian campaign, led his surgical staff in a round the clock schedule, with three teams working in succession on never empty operating tables.

Nurses were not due to be landed for several days, so the hospital's enlisted men donned operating gowns and sterilized masks and worked long hot hours in operating tents. Many had no more than two hours' sleep in the first three days.

Casualties that piled up during the first week of the campaign made expansion necessary, so a surgeon was added and then tents from a medical battalion. Abdominal punctures, head wounds, fractures and burns formed the bulk of the hospital cases.

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FOREIGN LANGUAGE REQUIREMENTS FOR PREMEDICAL STUDENTS

The Bureau of Naval Personnel of the Navy Department, Washington, D. C., announced on September 9 the interpretation of the foreign language requirements for premedical students as referred to in References (a) V-12 Bulletin No. 1, (b) V-12 Bulletin No. 22, and (c) V-12 Bulletin No. 2.

1. Reference (b), page 12c, language requirement for subject students shall be interpreted as follows:

V-1 and V-7 transfers to V-12, who are pursuing a pre-medical program, shall complete the equivalent of twelve college semester hours of a single foreign language. French, German or Spanish is preferred, but other languages may be substituted at the discretion of the college authorities. A high school unit (one year) is to be considered equivalent to six semester hours.

2. In accordance with reference (c), page 3, paragraph 8, other premedical students entering the V-12 program with advanced standing must meet minimal requirements prescribed for V-1 and V-7 transfers to V-12.

3. Only premedical students entering the V-12 program as freshmen will be required to take the fully prescribed course outlined in refer-

ence (a). Attention is invited to the fact that French, German or Spanish is preferred, but other languages may be substituted under exceptional circumstances. Interpretation of "exceptional circumstances" shall be the responsibility of the college authorities.

PROPHYLACTIC DOSES SULFADIAZINE CURB MENINGOCOCCIC MENINGITIS EPIDEMIC

The prophylactic administration of sulfadiazine by mouth, even in relatively small doses, appears to be a safe and effective method for curbing epidemics of meningococcic meningitis (infection with the meningococcus of the three membranes that envelop the brain and spinal cord) among large numbers of troops. Colonel Dwight M. Kuhns, Medical Corps, United States Army; Captain Carl T. Nelson and Captain Harry A. Feldman, Medical Corps, Army of the United States, and Captain L. Roland Kuhn, Sanitary Corps, Army of the United States, report in *The Journal of the American Medical Association* for October 9.

"This method of prohylaxis might also prove to be of value in terminating outbreaks of this disease in other situations, for example on troop transports at sea or in schools, orphanages and other institutions," the four officers say.

"Sulfadiazine was administered prophylactically to more than 15,000 troops in residence at two posts where meningococcic meningitis was particularly prevalent during the spring of 1943. In one instance 3 Gm. of drug was given by mouth daily for three days; in the other the dose of 2 Gm. daily for two days.

"Following the institution of prophylactic therapy the incidence of cerebrospinal fever among the treated individuals fell abruptly. Only 2 cases of the disease occurred during a subsequent period of eight weeks of observation. At the same time 40 cases were found among 18,800 untreated controls.

"Meningococcus carrier surveys showed that the administration of sulfadiazine by mouth effectively lowered the carrier rate in the treated group at a time when the incidence of carriers among the untreated controls remained high or actually increased.

"No serious toxic reactions resulted from the large scale administration of the drug. The treated men continued their usual daily activities without interruption."

In the introduction to their report the four investigators explain that from Jan. 1, 1943 to April 30, 1943 more than 1,300 cases of meningococcic meningitis occurred among military personnel in the Fourth Service Command.

"The customary control measures employed during outbreaks of meningococcic meningitis," they say, "include quarantine, prevention of overcrowding, protection from fatigue and exposure, and the prompt hospitalization or isolation of all cases of common respiratory illness. It is admitted, however, that these measures are only partially effective and, under conditions of active military training, can be properly applied only with considerable difficulty. It seemed desirable, therefore, to seek additional means of controlling this disease, particularly among the relatively 'unseasoned' recent inductees. To be useful under military conditions, any control measure proposed must be applicable to large numbers of individuals without causing serious interruptions in daily activities. The remarkable effectiveness of sulfadiazine in the treatment of meningococcic meningitis suggested that it might be of prophylactic value in the control of this disease among troops. . . . Although the exact role of the carrier in relation to the spread of meningococcic meningitis is not entirely clear, it seems logical that a measure which can quickly reduce the carrier rate to a low level may be valuable in retarding sharp outbreaks of this disease. Indeed, reports transmitted from the Office of the Surgeon General have indicated that sulfadiazine has been of value in controlling meningitis at several army posts in recent months. . . ."

BACK THE ATTACK!
BUY
WAR
BONDS!

Original Articles

CONVULSIONS IN CHILDHOOD

M. G. PETERMAN, M.D.
MILWAUKEE

The greatest contribution ever made to the study of convulsions was presented by Hans Berger of Jena in 1929 when he reported the results of his electroencephalography in clinical medicine.[1] Berger's instrument which makes it possible to record the electrical activity of the brain provided the first opportunity to demonstrate a potential convulsive disorder even before the first convulsion. It also established the organic nature of epilepsy and thus eliminated the confusing idea of a "functional state." A positive electrogram has been obtained in over 85 per cent of clinically diagnosed cases of idiopathic epilepsy.[2] The heredity of this disease which has long been emphasized[3] has now been established.[4] Abnormal electrograms have been reported in 52 per cent of the near relatives of epileptics.[5] In a group of inductees with a family history of seizures abnormal tracings were found in 62 per cent.[6]

Classification. — The first classification of convulsions in childhood was presented in 1932[7] and was revised in 1939.[8] (Table 1.) A new classification was presented in 1940, based on our knowledge of electroencephalography.[9] (Table 2.) In a previous study made before I had an electroencephalograph I was unable to establish the cause of convulsions in 53 of 1000 children.[8] The use of the instrument has now reduced the number of unclassified or undiagnosed convulsions to a very small percentage. Also, in the previous classification I listed 34 per cent of the convulsions as due to or associated with acute infections.[8] This terminology admittedly did not furnish a diagnosis nor a satisfactory explanation of the basic cause or etiology of these one-third of the convulsions in childhood.

TABLE I
CONVULSIONS
One Thousand Cases — Total Series

	Per cent
Acute infection	34.0
Idiopathic epilepsy	23.6
Cerebral birth injury or residue	15.5
Miscellaneous causes	12.7
Spasmophilia or tetany	8.9
Cause not established	5.3

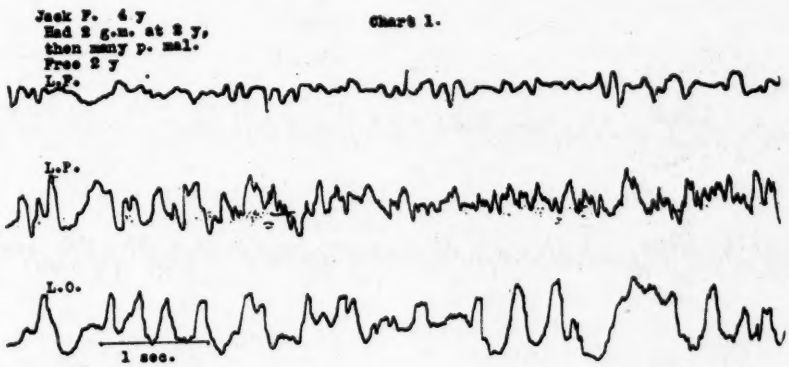
TABLE II
CAUSES OF CONVULSIONS

Organic	(1. Congenital or developmental cerebral anomalies
	(2. Antenatal, natal, or postnatal cerebral injuries
	(3. Antenatal, natal, or postnatal infections or poisonings and the residues thereof
	(4. Idiopathic epilepsy
Nonorganic	1. Chemical injuries or acute poisonings

Sporadic Convulsions. — Only a relatively small number of children suffer sporadic convulsions. Many of these have only one or two seizures and often only after the body temperature reaches a certain point. They usually present no other evident manifestation of a cerebral disease. It is extremely important to know whether this lowered convulsive threshold is functional or organic, temporary or permanent. Only the electroencephalograph can provide the answer. One of the greatest problems in diagnosis is the evaluation of such single or

Presented before the Joint Session, 103rd Annual Meeting of the Illinois State Medical Society, Chicago, May 19, 1943.

scattered convulsions in a child otherwise healthy. I am collecting a series of electrograms on these children and find the majority to show cerebral dysrhythmia or abnormal tracings. Following is a case in point. Jack F., 2½ years of age, had one convulsion at 16 months and another at 18 months of age. The parents wished to know why and whether they could expect more seizures. The electrogram (chart 1) shows a cerebral dysrhythmia, one-per-second high waves 15 months after the last seizure. (Chart 1.) The physical and the laboratory examinations showed no abnormalities. With a family history of convulsions on both sides a diagnosis of epilepsy



was made. Treatment was declined, and a convulsion recurred 6 months later. The seizures are now under control with phenobarbital.

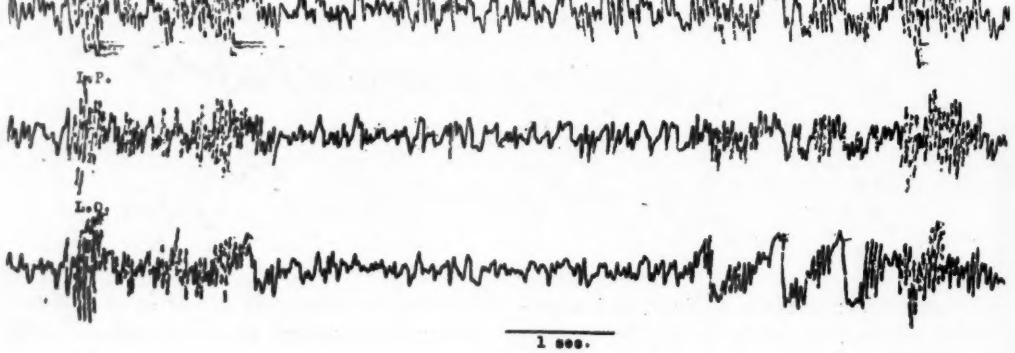
Harty and the Gibbs found abnormal electrograms in 50 per cent of inductees who gave a history of a few isolated convulsions in childhood.[6] Thus it seems that contrary to previous reports[10] most of these convulsions represent a lowered cerebral threshold due to an organic defect or lesion such as idiopathic epilepsy or the residue of cerebral injury. (I do not include the isolated convulsive reactions to a poison or toxin.) Careful examination of these children may occasionally reveal a slight incoördination of fine movements, a transient slight spasticity of certain groups of muscles, or an impulsive emotional instability. Any or all of these manifestations may become evident only under some unusual stress or strain. In other words, the basic organic pathology is present, but under normal conditions it can be demonstrated only with the electrogram.

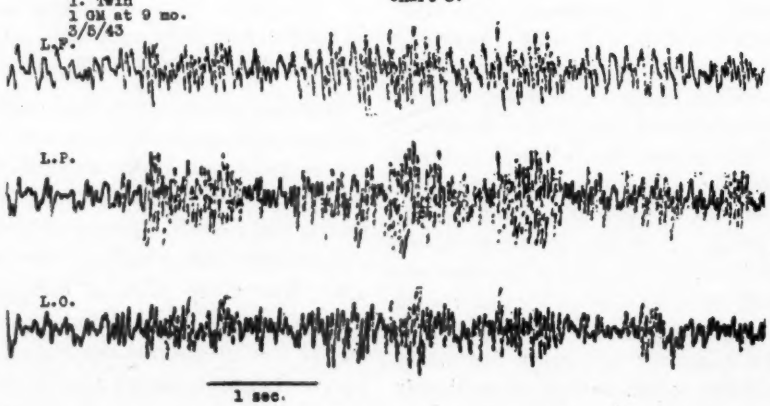
Precipitating Factors. — Any stimulus received under abnormal conditions or any abnormal stimulus under normal conditions may be the trigger mechanism or match which sets off the explosion. Some of the abnormal stimuli which may precipitate seizures include emotional disturbances (such as sudden fright), irritation of the carotid plexus, and continuous stimulation of the retina with a brilliant light. A petit mal seizure may often be precipitated by having the child stare at a brilliant light. The transient abnormal conditions under which normal stimuli may precipitate seizures in the individual with an organic cerebral defect include hypoglycemia (due to fasting or to hyperinsulinism), cerebral anemia or anoxia, alkalosis (such as that induced by hyperventilation[11] or hyperemesis), gastro-intestinal disturbances (such as acute gastric dilatation, acute indigestion, intestinal stasis, or constipation). I have seen fainting spells, attacks of vertigo, confusion, or collapse but never a tonic or grand mal convulsion due to hypoglycemia. Others have reported the same observation.[12]

Since the Gibbs and Lennox have found abnormal electrograms in 15 per cent of 1000 normal controls[6] and Harty and the Gibbs in 13 per cent of 148 selected controls,[6] it is not surprising that convulsions occur suddenly and most unexpectedly or that epilepsy may begin at any age. How many potential epileptics live and die without ever experiencing a recognized convulsion only the electroencephalograph can reveal today. Lennox reported that in twelve sets of identical twins, one of each subject to seizures,

the opposite twin had an abnormal electrogram in each instance.[4] I have studied two sets of identical and two sets of non-identical twins; in one of each set epilepsy was present. The identical seven-year-old twin boys provide the greatest scientific interest. Each had one convulsion at 9 months of age. H. has had a gradually increasing number of grand mal seizures since. For the past two years he has also had petit mal seizures. (Chart 2.) J. has had no further recognized seizures or abnormalities. J.'s electrogram shows a greater dysrhythmia than does his brother's. (Chart 3.)

Diagnosis of Epilepsy.— The diagnosis of idiopathic epilepsy is not always easy.[13] Because of the stigma of this disease with all of its connotations and because of the necessity of prolonged treatment, this diagnosis should not be made without adequate confirmation. Except for the electrogram there is no examination or test which will establish the diagnosis. The most valuable and useful aid in our whole armamentarium is a reliable and complete history which includes an accurate description of the seizures. Whenever possible an electrogram should be made. A positive tracing will settle





the problem. The following case illustrates the value of the electrogram.

Shirley K., a thirteen-year-old girl, according to the mother has been an epileptic since birth; the first convulsion supposedly occurred when the patient was only a few hours old. The convulsions recurred intermittently and the patient was unable to attend schools, to go out alone, etc. For three months the mother has noticed that the patient is becoming more and more irritable, easily thrown into temper tantrums and lately it has been impossible to control her at home. The patient has been taking phenobarbital, grains 1½, three times a day. "Physical examination was essentially negative, except for a slight increase of the left patellar reflex and marks in the tongue, suggestive of teeth marks. Since entrance patient has had several convulsions. These convulsions have been typically hysterical, with pupils reacting to light and accommodation, normal extra-ocular movements, no neurological signs and no loss of consciousness. On this basis phenobarbital was withdrawn and patient was given benzedrine sulphate, milligrams 5, morning and noon daily. To date no change has been observed in patient's condition as a result of the change in medication." The interne's description of the convulsion indicates his trend of thought. There was considerable difference of opinion among the consultants as to the diagnosis. The electrogram[2] (Chart 4) established the diagnosis of convulsive state. This is probably due to the residue of a cerebral birth injury. Chart 4.

Treatment. — The treatment of convulsions resolves itself into two phases, the immediate and the continued.[14] The immediate treatment of the convulsion demands, first, a rapid appraisal of the child's condition and an attempt to diagnose the cause. (Table 3.) First of all, *do not* put the child in a hot bath, and secondly, *do not* give morphine. Morphine will depress the respiratory center, contract the pupils, inhibit peristalsis, and mask the symptoms. The child will usually have a fever and a tepid or cool sponge or pack is indicated. If necessary, a cool enema may be added to reduce the body temperature. This should be followed by antipyretics to keep the temperature down.

If there is no fever or if the convulsion persists, the most effective and the simplest treatment is to administer vinyl ether or chloroform by the open drop method. Every hospital should have one or both of these anesthetics ready for prompt administration whenever the emergency arises. The danger or harmful effect of these drugs is nothing compared to the effect of a continued convulsion. If chloroform or vinyl ether are not available, sodium phenobarbital may be given by hypodermic injection. Magnesium sulphate may be given in a saturated (50 per cent) solution by mouth or in a retention enema, ½ to 1 ounce every four hours. For quick action this drug may be given intramuscularly or intravenously in sterile solution. Two to 8 c.c. of 50 per cent solution may be injected deep into the muscles every four hours.

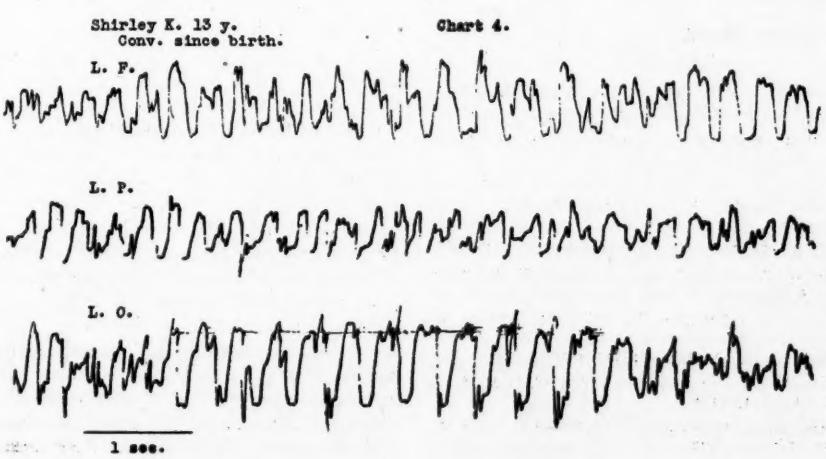


TABLE III
IMMEDIATE TREATMENT OF CONVULSIONS

1. Protect against injury; no opiates.
2. Reduce fever.
3. Chloroform or vinyl ether anesthesia.
4. Magnesium sulfate, repeat every six hours.
   60 to 180 cc. of 50 to 25 per cent solution by mouth or rectum, or
   5 to 20 cc. of 25 per cent sterile solution intramuscularly, or
   2 to 10 cc. of 20 to 10 per cent sterile solution intravenously slowly.
5. Calcium gluconate by mouth or intramuscularly.
6. Calcium chloride by mouth for tetany.
7. Tribromethanol by rectum for tetanus.
8. Phenobarbital sodium subcutaneously.
9. Chloral by rectum.
10. Absolute rest and quiet for days after.

Two to 5 c.c. of 25 per cent solution may be given intravenously by slow injection.

A most important factor in the treatment of an acute generalized convulsion is a realization of the injury which the convulsion may and often does produce to the brain. Therefore it is essential to keep every patient who has had a convulsion at absolute rest for several days thereafter.

The treatment of recurring convulsions will not be detailed here. Suffice it to say that the ketogenic diet remains the most effective treatment available for epilepsy.[15] It is the only treatment which has any effect on petit mal epilepsy.

Phenobarbital remains the drug of choice in those cases in which the ketogenic diet is not practicable or in which the results have been unsatisfactory.[16]

411 East Mason Street

REFERENCES

1. Berger, Hans: Ueber das Elektrenkephalogramm des Menschen, Arch. Pyschiat., 87:527, 1929.
2. Gibbs, F. A., Gibbs, E. L., and Lennox, W. G.: Brain, 40:377, (Dec.) 1937.
3. Peterman, M. G.: Ibid. Epilepsy, Am. J. Dis. Child., 32: 416, (Sept.) 1926. Epilepsy, Acta Paediat., 11:527, (Aug.) 1930.
4. Lennox, W. G.: J. A. M. A., 120:449, (Oct. 10) 1942.
5. Lennox, W. G., Gibbs, E. L., and Gibbs, F. A.: Arch. Neurol. & Psychiat., 44:1155 (Dec.) 1940.
6. Harty, John E., Gibbs, Erna L., and Gibbs, Frederic A.: Electroencephalographic study of 275 candidates for Military Service, War Medicine, 2:932, (Nov.) 1942.
7. Peterman, M. G.: Convulsions in Childhood, J. A. M. A., 99:546, (Aug. 13) 1932.
8. Peterman, M. G.: Convulsions in Childhood, J. A. M. A., 113:194, (July 15) 1939.
9. Peterman, M. G.: Convulsions in Childhood, Journ. Pediat., 17:114, (July) 1940.
10. Patrick, H. T., and Levy, D. M.: Early Convulsions in Epileptics and in others, J. A. M. A., 82:375, (Feb. 2) 1924.
11. Rosett, Joshua: Brain, 47:293, (Aug.) 1924.
12. Ziskind, Eugene: Insulin Hypoglycemia in Epilepsy, Arch. Neurol. and Psychiat., 36:331, (Aug.) 1936. Ziskind, Eugene, Hollomb, B.S., and Bolton, R. O.: Differential Diagnosis of Hypoglycemic Convulsions, Am. J. Med. Sc., 192:600, 1936. Pollack, L. J., and Boshes, B.: Carbohydrate Metabolism in Epilepsy, Arch. Int. Med., 59:1000, 1937.
13. Peterman, M. G.: Epilepsy in Childhood, Wis. Med J., 41:1001, (Nov.) 1942.
14. Peterman, M. G.: Treatment of Convulsions, Therapeutics of Infancy and Childhood, Vol. III Chap. LX, p. 2303, (by Litchfield and Dembo,) F. A. Davis Co., Phila., 1942.
15. McQuarrie, Irvine: Epilepsy and Convulsive Disorders, Practice of Pediatrics, vol. 4, chap. 12, W. F. Prior Co., Hagerstown, Md., 1942.
16. Peterman, M. G.: Epilepsy, J. Kansas Med. Soc., 41:277, (July) 1940.
17. Bethea, O. W.: Therapy of Convulsions, Internat. Med. Digest, 36:50, (Jan.) 1940.

DISCUSSION

Dr. Meyer Perlstein (Chicago): This being the last paper, reminds me of the claim that when surgeons get together it ends in a fight, but with pediatricians it ends in convulsions.

This extremely interesting film of Dr. Peterman is worthy of a lot of comment. I do not know of another motion picture that shows clinical convulsions. All the commercial pharmaceutical firms have many pictures on suturing, surgery or suppositories, but none has a picture on convulsions. I can well appreciate the difficulties that Dr. Peterman had, because I am trying to do the same thing. One of the medical schools that would like to have me make a picture on convulsions for teaching purposes, asked me to write a scenario first. Of course, for a film on convulsions, this is impossible, for convulsions are not thrown at will, and need no rehearsals. You have to film them when you see them.

The value of a picture such as Dr. Peterman's is really for teaching purposes. These pictures tell you a lot more about convulsions than reams of paper or volumes of books. Often the character or cause of a convulsion can be determined by ordinary observation of the convulsion. For instance, the trismus and risus sardonicus of the tetanus patient is diagnostic of the condition. The convulsions are characterized by pain, and once seen can never be forgotten. Likewise, the convulsions of rabies are characterized by fear, as the word hydrophobia indicates. The convulsion that occurs in a child with a tuberculosis meningitis or encephalitis is frequently unilateral. You can often get a hint that you are dealing with a basilar meningitis from the opisthotonic convulsion in this condition. The carpopedal spasm of tetany is likewise diagnostic. Sometimes it is not even necessary

to see the convulsion to know its cause, for often the general appearance of the patient gives the diagnosis away. Thus in tuberous sclerosis, the patient has a typical adenoma sebaceum. In one of the less common causes of convulsions, a premature closure of the skull sutures, where the skull ceases to grow and the brain continues to grow, typical facies is apparent. It is characterized by prognathism. There is a proptosis and some exophthalmos and the eyes are set widely apart. These and many other clinical signs are best demonstrated by pictures.

I think the concept that Dr. Peterman has mentioned regarding the genesis of convulsions, in its relationship to cerebral dysrhythmia, is very new.

We used to laugh about grandmothers saying that worms and fever and fright caused convulsions. Actually, they can act as a trigger mechanism to cause convulsions in an individual who has that constitutional diathesis of cerebral dysrhythmia.

I want to say a few words about some of the unusual causes of convulsions in children. Although most convulsions are due to cerebral dysrhythmias, not all are. Among the less common causes of convulsions, I want to mention lead poisoning, which in children will frequently begin with convulsions. In adults, wrist drop, vomiting, constipation and colic are common, but in children convulsions are the outstanding manifestation. We have seen over 50 cases of plumbism in children in the last six or seven years, which is not uncommon. The majority of these cases might indicate that the condition was due to the burning of battery cases; two were due to the sucking of lead toys, and several were due to drinking contaminated water which had stood in lead tanks or pipes.

Although Dr. Peterman states that he has not seen convulsions in hypoglycemia, we have seen definite hypoglycemic convulsions. These may have been cerebral dysrhythmias in whom the precipitating mechanism might have been the hypoglycemia. That possibility is indicated by the fact that in one of these children, whom we followed for four years, until she was old enough to have an electro-encephalogram, we found a cerebral dysrhythmia.

Spasmophilic tetany is becoming a rare disease now, because of the general improvement in infant feeding. In going over the record of our convulsions at the County Hospital, we were impressed by the fact whereas ten and twenty years ago most of the tetanies occurred in children between six and eighteen months of age, that of the eleven tetanies in the last several years, nine of them occurred in children under seven months of age, and seven of these were in infants under three months of age. Apparently, when tetany does occur now, it is of the severe type which attacks very young infants.

Tetany of the new-born, which is a recognized syndrome, really occurs at times. I believe I have seen relatively recently three cases of the disease, where convulsions began on the third day of life, the calcium being between five and six, and phosphorus up to fourteen or fifteen, mgs. per 100 cc. of blood. The mechanism of this type of tetany is different from avitaminotic tetany. It is thought to be due to a temporary hypoparathyroidism in the infant, induced by a maternal physiological hyperparathyroidism.

Finally, let me call attention to a very rare cause of convulsions in the new-born, of which I have seen only one case; namely, congenital morphinism. I was called to attend a child born to a morphine addict, taking ten grains of morphine a day. On the third day of life the child developed tremors, vomiting, diarrhea, restlessness and a convulsion. These are typical withdrawal symptoms. This was a child with a congenital morphinism. Although I was unaware of the existence of this syndrome at the time, I was surprised to learn that the mother expected it. She knew more about it than I did. I could not find any reference to this condition in the text books on pediatrics, except for an excellent discussion of the condition in Dr. Tow's book on *Newborn*. Thus, in children born to addicted mothers, one must be on the lookout for convulsions and other symptoms of congenital morphinism.

I want to congratulate Dr. Peterman again on his excellent work in the field of convulsions in children.

Dr. H. E. Irish (Chicago): I think this is a wonderful paper and a wonderful contribution.

Dr. M. L. Blatt has some revealing movies on the convulsions of rabies, and I hope that perhaps sometime in the not far future that collections of these films, possibly derived from various sources, will be put out by some one — perhaps the American Academy of Pediatrics — so that educational institutions can use them to teach students something about which we talk and about which we lecture, but which we never can show them because usually the convulsions do not occur at the time when the students are at the site of a seizure.

Such an arrangement would certainly be a vast help to students, and I am sure that many older men would enjoy knowing something about the different varieties of convulsions.

As far as the general practitioner is concerned, he is the man who sees these dozens of convulsions that occur, and as a rule he is pretty competent to handle them, and I think handles most of them rather well.

We know that tuberculosis is caused by the tubercle bacillus, but we also know that malnutrition, fatigue, dust, poor ventilation, poverty and overcrowding are contributing factors. Henrietta Landau, Pub. Health Nursing Consultant, U.S.P.H.S. Hoosier Health Herald, Oct. 1942.

Doctors should do their knocking with a reflex hammer.—Fetterman.

TUMOR DIAGNOSTIC SERVICES IN ILLINOIS

HARRY OTTEN, M.D., F.A.C.S.

SPRINGFIELD

1. *Introductory.* Cancer has become during recent years an increasingly important disease in the practice of medicine. With an annual numerical increase in mortality of about two per cent cancer has risen to second place as a principal cause of death, exceeded only by heart disease. The development of modern methods in the pathology, diagnosis, treatment and follow-up of cancer has created one of the most complex problems in any field of medical practice. It is now generally recognized that cancer is not a single disease but a large group of diseases differing widely in their pathological characteristics and their clinical manisfestations. The pathologist recognizes about 600 types of neoplastic disease. Patients with even well established cancer may have amazing good health and offer little or no complaint. In early cases the signs and symptoms may be so confusing that a differential clinical diagnosis is difficult, if not impossible. The diagnosis and treatment of cancer is accordingly no longer a "one man job." In many cases a competent diagnosis requires the *combined* judgment of the surgeon, the radiologist, the pathologist, the internist, and the specialist in a particular field. When the diagnosis has been definitely established, the next most important step is a consultation between the surgeon and the radiologist as to the best method of treatment, each keeping in mind the possibilities of the other's methods as well as the limitations of his own.

2. *State Tumor Diagnostic Services.* A recognition of the need for such group diagnostic facilities in the treatment of cancer was substantially expressed by the organization of the Division of Cancer Control in the State Department of Public Health in 1940, and the subsequent provision of funds for the establishment of Tumor Diagnostic Services in connection with general hospitals at a few selected points in the State. This action was in line with the consensus of authoritative opinion in the cancer field that tumor services in general hospitals constitute at present the most effective means of reducing cancer morbidity and mortality.

This program was developed under the direct supervision of the Advisory Board to the Division of Cancer Control, which at present consists of the following members:

Roswell T. Pettit, M.D., Ottawa. . . Chairman
William Cooley, M.D., Peoria
Fauntleroy Flinn, M.D., Decatur
James P. Simonds, M.D., Chicago
James S. Templeton, M.D., Pinckneyville
John A. Wolfer, M.D., Chicago
Edwin F. Hirsch, M.D., Chicago. . . Secretary

The Illinois State Medical Society has formally approved in principle this work by action of the House of Delegates.

State Tumor Diagnostic Services are at present in operation under the auspices of the Division of Cancer Control at the Memorial Hospital, Springfield; the Methodist Hospital, Peoria; St. Anthony's Hospital, Rockford; and the Burnham City Hospital, Champaign. Additional Services have been approved by the Perry County Medical Society for Du Quoin, and the La Salle County Medical Society for Ottawa; but the lack of personnel due to the withdrawal of physicians from civil practice in the present emergency has prevented their establishment.

The policies, objects, organization, and conduct of these Services (as set forth by the Division of Cancer Control) are as follows:

Policies. The local County Medical Society shall approve the establishment of the Service.

The local Hospital shall independently organize and conduct the Service.

The requirements of the American College of Surgeons for the organization and conduct of such a Service shall approximately be met.

The State Department of Public Health, through its Division of Cancer Control, shall promote the Service, provide funds and exercise reasonable supervision.

Objects. The primary objects of the Service shall be:

To provide a competent consultation service for physicians and dentists in the diagnosis of their suspected tumor cases.

To provide a concentration of clinical material for study by specialists in the cancer field.

To collect and record data necessary to determine the end results of treatment.

Presented before the Joint Session of the Section on Surgery and Central States Society of Industrial Medicine and Surgery, Illinois State Medical Society, 103rd Annual Meeting, Chicago, May 18, 1943.

To follow up cases effectively for early detection of possible recurrence of disease.

Handling of Cases. Patients shall be admitted to the Service only by reference of a phsysician.

The referring physician should preferably accompany the patient.

Unaccompanied patients should bring a written statement from the physician giving a brief history of the case, including laboratory and x-ray reports.

A written diagnosis and recommendations for treatment shall be made by the Service Staff; and the patient shall be directed back to the referring physician for further action.

Provision should be made for examination by Tumor Service Staff members of patients referred on any day between regular clinical sessions, as a means of prompt service both to physicians and patients.

All outpatients and ward patients admitted to the Hospital presenting a cancer, benign tumor or precancerous condition should automatically be referred to this Service.

No treatment shall be rendered by the Service in any case.

Biopsies may be performed as a diagnostic procedure at the discretion of the Service Staff.

Medical Staff. Appointments to the Staff of the Tumor Diagnostic Service shall be made on a permanent basis and in accordance with customary procedure by the local Hospital.

Appointment of alternate Staff Members may be made to insure proper functioning of the Service; and a reasonable rotation in term of office may be permitted in such appointments.

The medical Staff of the Service shall include without exception a pathologist, radiologist, general surgeon, and internist; each of whom preferably has special ability in the cancer field.

Additional Staff Members of the Service should include qualified representatives of the surgical specialties, dermatology, dentistry.

One of the Staff Members of the Service shall be appointed as Director of the Service. He should be selected both for his broad experience in the cancer field and his fairness in dealing with his colleagues.

Appointments to the Medical Staff of the Tumor Diagnostic Service should include representatives of the various hospitals in the local area, on the broadest possible basis consistent with efficient organization.

Technical Staff. Appointments to this Staff should include a medical secretary, pathology technician, radiology technician, and a clinic assistant (registered nurse).

Personnel of this Staff should be employees of the local Hospital conducting the Service and entirely responsible to the Hospital management.

Conferences. Full clinical sessions of the Tumor Diagnostic Service should be held preferably once a week in accordance with a definite schedule, and at such other times as may be desirable.

More formal conferences, at perhaps quarterly intervals, should be conducted by the Service Staff at which time selected cases of particular forms of cancer should be presented.

Notices of all such conferences should be regularly sent by mail to physicians and dentists in the local and adjacent counties, and their participation in the activities of the Service should be encouraged.

Records. A complete clinical history of each case admitted to the Tumor Diagnostic Service shall be recorded.

A separate filing system of case histories shall be maintained; each case being cross-indexed as to name, number, year, and regional incidence of disease.

The abstract forms prepared by the American College of Surgeons shall be used to record pertinent data on each case, a duplicate of which shall be sent to the State Division of Cancer Control.

Adequate follow-up data shall be included in the record of each case. During the first year after admission to the Tumor Diagnostic Service the patient's condition should be definitely checked at the end of the first, third, sixth, and twelfth months; and thereafter at yearly intervals for not less than five and preferably ten years.

Every cancer patient discharged from the Hospital should be referred to the Tumor Diagnostic Service for follow-up. In private cases, this facility should be offered to the attending physician.

When microscopic examinations of tissue are made by the Service a duplicate slide shall be prepared and sent to the State Division of Cancer Control as a part of the patient's record.

Charges. The facilities of the Service shall be made available to medically indigent patients without charge in every case, provided the patient is certified as such by the referring physician or other authority acceptable to the Hospital.

Tissue Diagnosis. As a supplementary activity of the Tumor Diagnostic Service the local Hospital shall accept specimens of suspected tumor tissue from medically indigent patients submitted by physicians and dentists for microscopic examination and diagnosis.

The physician or dentist shall certify the medical indigency of the patient in each case.

The Hospital shall accept such specimens without restrictions as to geographical source in the State.

A written statement of the diagnosis of such specimens, signed by the Pathologist, shall be sent by the Hospital to the physician or dentist in each case.

A suitably prepared duplicate slide of each specimen examined, together with a copy of the Pathologist's report to the physician or dentist shall be sent to the State Division of Cancer Control.

3. *Springfield Tumor Diagnostic Service.* It was during the summer of 1940 that the radiol-

ogist and the pathologist at the Memorial Hospital expressed the desire to the president of the Staff that a clinic for tumor diagnosis be established at the hospital. The reason for this being that problems for diagnosis presented themselves to these men very frequently and they felt that there was a need for such a service in this community. While plans were being formulated, a letter came from the American College of Surgeons urging us to establish a tumor clinic in the hospital. During October 1940, Dr. Ian G. MacDonald came to the Memorial Hospital and explained the values of group work and outlined the recommended set up for the cancer clinic to the staff of the Memorial Hospital.

The organization of the cancer clinic was perfected, with the president of the staff acting as executive officer. On December 9, 1940, the following letter was sent to every member of the various staffs of the hospital, as well as to all members of the medical profession in Sangamon and surrounding counties.

December 9, 1940

NOTICE TO MEMBERS OF THE CONSULTING, ATTENDING AND ASSOCIATE STAFFS.

This is to notify the members of the staff that a Tumor Clinic conforming to the recommendations of the American College of Surgeons has been established in the Springfield Memorial Hospital.

This Tumor Clinic has been organized for the following purpose: to make available to any and all members of the staffs and any other interested physicians a consultative service for the diagnosis and treatment in every case in which a tumor or the suspicion of a tumor is present. This service will be provided for indigent as well as private patients by a group composed of members of the attending staff including the representatives of various specialties whose cooperative opinion will be given only to the physicians of the patients presented before this body and only as a recommendation. As mentioned above diagnostic as well as therapeutic advice will be given at no charge. Patients will be examined only at the request of a physician. All members of the staff are welcome to participate in the meetings of this body.

The purpose according to a publication of the American College of Surgeons is "by the pooling of the cancer material and the cancer work of a general hospital among such an interested group (Tumor Clinic) an error of judgment of one working alone is apt to be overcome by carefully unhurried presentation of the case to the tumor board. The board deliberates over the many problems of pathology, radiation and surgery presented by the complex case."

The meetings of the Tumor Clinic will take place at 8:30 A.M. on the first and third Tuesday of every month, at the Memorial Hospital. Your cooperation will be appreciated. Communications concerning the Tumor Clinic should be addressed to the Secretary.

The first clinic was held December 17, 1940 at the Memorial Hospital, and continued twice a month thereafter. This Tumor Clinic was a new type of organization in this community, although similar clinics had for a number of years been operating in the middle west and east. It had been established on the recommendation of the American College of Surgeons which considers it a necessary institution in the fight against cancer. The recognition and treatment of Cancer often presents a serious problem which can be more satisfactorily solved by the cooperation of physicians many of whom are particularly experienced in some specialized field of medicine, than by a single physician. No treatments were given in the clinic and patients were examined only at the request of their family physician who then used the advice given by the clinic and arranged for treatment. Private as well as needy patients were examined by the members of the clinic without charge.

The histories, diagnosis and treatments were recorded on the American College of Surgeons cancer record forms.

During July 1941, Dr. Charles A. Woltman, of the American College of Surgeons, conducted a survey of our organization and the conduct of the tumor clinic, which he found very satisfactory.

During August 1941, the State of Illinois Department of Public Health, Division of Cancer Control through Dr. R. V. Brokaw, Chief of that Division, offered to subsidize a clinic in Springfield, Illinois, providing that it was approved by the Sangamon County Medical Society. On September 4, 1941 at the regular monthly meeting of the Sangamon County Medical Society the Society approved the motion that the Tumor Clinic which had been in operation at the Memorial Hospital for the past year be designated to take care of the Tumor Diagnostic Service as outlined by the State of Illinois Division of Cancer Control.

The name of the Tumor Clinic was changed to Tumor Diagnostic Service with the following personnel: pathologist, radiologist, general surgeon, and internist; also representatives of surgical specialties, gynecology, urology, otorhinolaryngology, orthopedics, dermatology, and oral surgery. The clinic is conducted by the Director who is the executive officer, assisted by a Secretary and a Social service worker. The Secretary records the history, physical examination, discussion, diagnosis and recommendations of the staff of the clinic, takes care of the cancer history records, cross files, etc., and a Social worker who is a registered nurse, assists at each clinic session and also does the follow up work.

Since June 1942, it has become necessary to hold weekly sessions of the clinic, because of the increase in number of patients. However patients who come in at other times are taken care of between the regular sessions.

In conducting the clinic, the family physician gives a history of the case. Then the patient is brought in and examined carefully. The patient is taken out of the room. The case is discussed and a diagnosis is arrived at. A Biopsy of all tumors is made before treatment is started for a definite pathological diagnosis as well as for a record of cures later. Any x-ray or laboratory procedures which are indicated are done. After the diagnosis is made the family physician takes the advice and uses it as he sees fit. The patient is still his. The tumor diagnostic service does not treat any patients. At the clinical sessions the group is concerned with investigation and discussion of new cases, observation and specialized care of patients under treatment, and follow up of old cases.

4. *Summary.* The object of these tumor diagnostic services in Illinois is:

A. To make people cancer conscious. To dispel the old attitude toward cancer of fear and hopelessness. Today we know that early cancer is curable if promptly diagnosed and properly treated. The important thing is to detect cancer in its early stages. The real nature of cancer is a wild growth of once apparently normal cells. We need to talk about cancer not to frighten any one, but to encourage him to seek competent professional advice at the first suspicion that something is wrong. If a cancer or malignancy has actually started, treatment may be instituted in ample time to stop this outlaw growth before it becomes too large to be stopped. Two important cancer safe guards:

1. Regular physical examination at least once a year.
2. Learn cancer danger signals.
   a. any persistent lump or thickening especially in the breast.
   b. any irregular bleeding or discharge from any body opening.
   c. any persistent and unexplained indigestion.
   d. any sore that does not heal normally, especially about the tongue, mouth or lips.
   e. any sudden change in the growth of a mole or wart.
   f. do not wait for pain; after pain occurs the cancer may be no longer curable.

Treatment of cancer depends upon two important factors, early discovery and immediate treatment.

There are only three satisfactory methods of treatment at the present time — surgery, radium and x-rays. The use of salves, medicines and serums only menace your future.

B. To provide a group consultation service for the general practitioner in the diagnosis of his suspected tumor cases.

C. To provide a concentration of clinical material for study by specialists in the field of cancer.

D. To collect and record data necessary to determine the end results of treatments.

E. To follow up cases effectively for early detection of possible recurrence of disease.

DISCUSSION

Dr. John A. Wolfer, Chicago: — Mr. Chairman, as Dr. Otten has stated in his paper, I am a member of the Advisory Board to the Division of Cancer Control, Department of Public Health of the State of Illinois, and participated in the various discussions and studies which led to the proposal of this diagnostic service. I can assure you that this commmittee weighed the evidence very carefully and were in thorough accord with the project and felt that it was an extremely judicious thing to follow through.

I might also say that since these diagnostic services have been instituted (and they have been instituted in every case at the request of the local medical

society) not only the local medical society but all the professions in the vicinity have welcomed this service and many other communities have asked for it.

As Dr. Otten has mentioned, there have been several requests which cannot be fulfilled because of the limitation in medical personnel, especially the pathologists. You cannot find one with a fine tooth comb that is free, and we feel that the pathologist is probably the central figure in such a tumor clinic because of his help to the clinician in the study of the pathological specimen.

So if the response to the services that have been instituted so far is a criterion, the venture will be accepted very enthusiastically by the profession throughout the state.

Dr. Otten has alluded to the purpose of this service. A few nights' ago there was opened in Chicago the first of what is to be called a Cancer Prevention Clinic at the Women and Children's Hospital, the staff consisting entirely of women and the patients are to be limited to women. At this opening, Dr. Hektoen made a very terse and rather unusual statement. He stated that cancer in its early stages was one of the easiest diseases to treat and cure that came before the profession. He made that as a final statement, and he said "Put that down in your book," and then he sat down.

I think we all recognize the fact that in many instances early cancer can be cured very easily, while late cancer cannot be cured at all. There should be, therefore, a concerted effort to bring about some setup whereby cancer can be diagnosed early and through which the patient can be given the maximum chance of being cured.

As Dr. Otten further stated, the diagnosis and treatment of cancer is no longer a one-man's job. There have been tremendous advancements made in the treatent and diagnosis of cancer. Being associated with a tumor clinic in Chicago during its entire existence, I am strikingly amazed at the diffcrence in the whole setup today from what it was ten years' ago. I am amazed at the attitude of the people, at the precision of diagnosis, and, likewise, the end results. We see daily cases that are practically given up by their physicians — they are sent in just to be sort of gone over and see what can be done — and yet we find these cases being treated and coming in month after month and year after year; not all made perfectly comfortable, probably not cured, but certainly they are given much more benefit than many heart cases that are treated very carefully and scrupulously by the internists.

So I think the whole setup is for the purpose of procuring early diagnoses. Team work is essential so that we may have the benefit of those that are skilled in the use of the bronchoscope, the gastroscope, and the cystoscope; also the expert radiologist and pathologist. All this leads to early diagnoses.

I think I have nothing more to add. I read with a great deal of pleasure Dr. Otten's paper that he sent me a few days ago. I think he has given a very good description of what is going on. I only want to emphasize in closing this one point: the Health Department is in no wise interested in taking away the practice of Medicine from the doctors of the State of Illinois. It is simply helping the doctors in every one of these institutions. The hospital appoints a staff; that staff runs that diagnostic service. There is absolutely no interference from the Department of Public Health. The only thing the Department of Public Health does is to keep a check because it is giving money to provide for technical help, either secretarial, laboratory, x-ray, or what not.

So be assured that the Department of Public Health is not interested in the practice of Medicine. It is only helping us in the State of Illinois to give our patients better care.

Thank you very much.

Dr. Charles L. Leonard, Rockford: — I must say that Dr. Otten summed up the field of Tumor Diagnostic Service very well. We differ a little in our field in that each town or hospital in which a tumor service is organized must have its own formula or design in order that it meets the will of the doctors and the civilians in that respective community.

We organized our setup in Rockford in 1940, one year previous to the time the state began its work. Our rules and regulations are exactly the same as those outlined by Dr. Otten, with a few exceptions. We have two committees: a cancer consulting committee, composed of the resident Roentgenologist and resident pathologist, and a consultant of the doctor's own choosing. In this way we find that the doctor seeking the information has much more confidence in what the committee has to say, if he has the right to choose a man in whom he has already much confidence.

The other committee is the executive committee, which has charge of the conduct of the clinics, the ethics involved, etc. This is composed of a chairman, a resident Roentgenologist, a resident pathologist, and a member of each of the other two hospitals in Rockford chosen by their respective staffs. In this way we have the support of all the doctors of our community and each group is represented.

We have enjoyed much success in our clinic and have learned a great deal, but we have a long way to go. The young men do not seem to be interested in a setup which is benefiting a community. They are too busy trying to establish themselves.

I do feel that some sort of program should be given in our medical schools that would stimulate the young M.D. to do something towards community welfare, such as immunization, maternal welfare, or, as we have, the tumor diagnostic service. In this way he will sell himself much better than trying to sell himself to any individual patient.

We have good meetings, with much discussion, especially in regard to diagnosis. They are held every second and fourth Tuesday of each month. The

material accumulated is from the men, mostly on our staff. Our attendance averages about ten out of a staff of thirty men, which I think is a pretty good percentage.

We feel that the surface is only scratched in our territory. We want the state to try to notify the various county societies in our territory of our service, and in that way we will be helping our community against a dreaded disease which to my mind is a badly neglected field of medicine.

Thank you.

Dr. Harry E. Mock, Sr., Chicago: — It seems to me that this is an exceedingly fitting time for this magnificent paper to be presented. Lying in his little home in New York is James Ewing, that great teacher and pathologist who, I believe, had more to do with the spread of tumor clinics, tumor groups in this fight against cancer, than any other one man in the country. Today he is a national character whose body is lying in state because of the recognition of his work as set forth in this address and many similar papers. I just could not resist paying this tribute to Dr. Ewing.

ANEMIA IN PREGNANCY

E. GRAHAM EVANS, M.D.,

AURORA

From the Department of Obstetrics and Gynecology, University of Illinois College of Medicine

In the course of routine prenatal examination, the emphasis has been largely on the attempt to detect toxemia of pregnancy and very little attention has been given to blood changes. Routine blood examinations are rarely a part of prenatal care and usually are not made at frequent enough intervals to detect the presence of anemia.

Historical: The so called "physiologic anemia of pregnancy" which is not a true anemia but is simply a result of the increase in blood plasma with the associated dilution of red blood cells and the lowering of the hemoglobin in each unit of blood has been observed by many writers. Dieckmann[1] in a series of articles on the normal changes of blood in pregnancy comes to the conclusion that the usual decrease in hemoglobin is about 15% due to physiologic hydremia, and that a concentration of less than 10 grams per 100 cubic centimeters is necessary for the diagnosis of true anemia. Adair and Dieckmann[2] show that 11.6% of their cases showed anemia on these standards while 63.2% fall below the standards for non-pregnant patients. Plass[3] states that repeated examinations showing hemoglobin under 70% and erythrocytes below 3,500,000 indicate true anemia.

Factors Contributing to Anemia in Pregnancy. Foetal demands: As early as 1892 Bunge showed that the livers of full term animals contained about five times as much iron per gram of tissue as adults. This has been presumed to be stored as a supply during the early months when milk, a markedly iron deficient food, is the chief source of nourishment. Other investigations have shown that about two-thirds of the iron supply takes place in the last trimester. The great frequency of anemia in prematures bears out the observation. Coons[4] shows that a total of 0.9 grams of iron must be supplied by the food or iron reserves during pregnancy, or about 3.2 milligrams per day.

Dietary inadequacy: Because of gastric upsets in pregnancy as well as a capricious appetite, there is apt to be a deficient intake of iron even among those patients who can easily afford an adequate diet. Strauss[5] and others have showed that a lowered gastric acidity is frequent in pregnancy and that this resulted in poor utilization of iron.

Clinical Observation. One hundred and seventeen private patients of middle class economic status were studied throughout their pregnancies with hemoglobin and erythrocyte determinations at each prenatal visit and six weeks post-partum. The hemoglobin was observed with a Sahli-Adams hemacytometer standardized at 14.5 grams = 100%. All observations were made by the same technician.

No cases of macrocytic pernicious anemia of pregnancy were found in the present series. This, fortunately, is a very rare but serious complication.

Table 1 shows the average change in the hemoglobin and erythrocytes by lunar months for the entire series of 117 patients as well as the six weeks post-partum determination.

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*Presented before the Section on Obstetrics and Gynecology, 102nd Annual Meeting, Illinois State Medical Society, Springfield, May 19, 1942.

TABLE I
Lunar Months

	2	3	4	5	6	7	8	9	10	Post Partum
Hemoglobin %	81.0	79.8	74.7	71.5	67.3	68.8	68.8	71.3	73.0	80.0
Grams per 100 cc.	12.1	11.6	11.2	10.7	9.75	10.0	10.0	10.3	10.6	11.6
RBC	4.58	4.59	4.56	4.20	4.23	4.28	4.29	4.31	4.41	4.87

TABLE II
Lunar Months Gestation

No. of cases	2	3	8	5	6	7	8	9	10
High point	15	24	8	13	4	5	12	19	17
Low point	2	1	2	11	19	18	31	26	7

TABLE III
Fall in Hemoglobin in per cent

	0-5	6-10	11-15	16-20	21-25	26-30	31-35	36-40	41-45
Number of cases	5	6	6	16	14	14	7	5	1
Percent of cases	6.7	8.1	8.1	21.6	19	19	9.5	6.7	1.3

TABLE IV
Distribution of Lowest Hemoglobin Levels
Percentage Groups

	40-44	45-49	50-54	55-59	60-64	65-69	70-74	75 plus
No. of cases	1	1	15	22	43	20	11	4
Per cent	.86	.86	12.8	18.8	36.8	17.1	9.4	3.8

There is a steady drop in the hemoglobin until the low point of 67.3% (9.75 grams) is reached at the sixth lunar month and then a gradual rise toward term with a return to normal at the six weeks post-partum examination. The erythrocytes show a similar but less marked change with a more marked upswing toward term and an improvement at the post-partum examination. Note that at no time does the average count fall below 4,000,000. The color index at the lowest point is .8 indicative of a hemoglobin deficiency. Unfortunately, the graph does not show the typical changes of the individual case as while some are falling, others are rising the distribution of times when the high and low are reached by individual patients is of interest.

Thus, while the average low was reached at the sixth month, the greatest number of cases, (31) reached their low at the eighth month, but this was offset by 12 cases which reached their high point.

Table 3 shows an analysis of the drop in hemoglobin in 75 cases who were seen in the first trimester and had at least 10 determinations throughout their pregnancy. The average drop in hemoglobin below the level of the first examination was 21.6%. Those who started low made the least fall as treatment was instituted immediately.

One patient in this series whose first hemoglobin determination was 54% made a steady rise but every other case showed a loss,

The lowest level reached by the hemoglobin in the entire series is indicated by Table 4.

From these figures it is found that 87% of the entire series showed a hemoglobin of 69% (10 grams) or less at some time during the pregnancy, although only 3.9% were this low on first examination.

Treatment — Literature: Several authors report marked and immediate response to iron

therapy in the microcytic anemia of pregnancy, although Dieckman[1] calls attention to the marked fluctuation of hemoglobin during pregnancy and cautions against attributing too much to therapy, particularly as a rise toward the end of pregnancy. However, in his untreated series he shows that the hemoglobin still averaged 15% below normal with a normal erythrocyte count at 8 weeks post-partum. Labate,[6] in a controlled series of 325 patients who received 15 grains of ferrous sulphate daily had an average red blood count of 4,090,000 and a hemoglobin of 11.61 grams on admission, while 307 patients who did not receive iron showed 3,010,000 and 8.16 respectively. He also showed a significant reduction in morbidity and hospital days in the treated series.

Present series: All patients with a hemoglobin under 70% were given 15 grains of an enteric coated ferrous sulphate preparation daily. If a significant response was not made, the dosage was increased to 30 grains. This preparation was chosen for its relatively high absorption rate and its infrequency of gastric distress. No controls were used making the results difficult to evaluate, but the average at six weeks post-partum showed a return of the hemoglobin to normal and a moderate increase in the erythrocyte count.

Discussion: The entire picture of blood changes in pregnancy is still confusing. The term "physiologic anemia", due to dilution of the blood, does not explain why some do not develop anemia nor does it explain the response to treatment with simple iron salts in a large percentage of cases. Dieckman[1] cautions about the sudden and marked variations which occur in hemoglobin, cell volume, and erythrocyte counts during pregnancy which may be falsely attributed to therapy. Unfortunately, many reports on anemia have been based on grouping cases on the basis of a single blood count and this present series shows that there is a marked variation in the time of onset of the hemoglobin fall and many examinations are necessary to determine the true incidence. With the amount of iron taken by the foetus, it is certainly reasonable to assume that there should be a depletion of the maternal iron stores. Many investigators have shown there is a lower incidence of morbidity, toxemia and more rapid recovery from blood loss in those patients whose blood levels were normal; therefore, the use of simple iron salts in pregnancy should be a rational procedure.

CONCLUSION

1. Eighty seven per cent of 117 patients studied with hemoglobin and erythrocyte counts at the prenatal visit showed a hemoglobin drop to less than 69% (10 grams) during their pregnancy.

2. Repeated observations of the blood are necessary because of the marked variance in the time of fall.

3. The drop in hemoglobin is out of proportion to the drop in the red blood cells.

4. Use of ferrous sulphate is rational with the return of the blood to its non-pregnant level at six weeks post-partum.

BIBLIOGRAPHY

Acknowledgement is made of technical assistance by Alice Munson, R.T.

1. Dieckmann and Wegner: Arch. Int. Med. 53: 188-207 — 1934.
2. Adair, F. and Dieckmann, W.: Am. Jour. of Ob. and Gyn. 32:560 — 1936.
3. Plass, E. D.: South. Med. Jour. 29: 417-421 — 1936.
4. Coons, J.: Jour. Biolo. Chem. 97: 215-222 — 1932.
5. Strauss, M. B.: J.A.M.A. 102: 281 — 1934.
6. Labate, J. S.: Am. Jour. of Ob. and Gyn. 38: 48-56 — 1939.

DISCUSSION

Dr. John R. Wolff, (Chicago): I would like to compliment Dr. Evans on the character of his presentation and the character of the work itself. Unfortunately I can't quite agree with him on his conclusions that these patients are anemic and that they are in need of iron therapy.

He has presented valuable information in that each case was followed at regular intervals throughout the duration of the pregnancy. The fact that each observation was made with the same apparatus by the same technician lends to the technical accuracy of the work. Anyone who has done any work on blood can readily agree to that.

Dieckmann and Wegner have shown that the blood volume is tremendously increased during pregnancy. Although the plasma content shows the greatest increase, the total amount of hemoglobin and the total number of circulating erythrocytes is greater in the pregnant than in the non-pregnant individual. But because the increase in plasma content is proportionally the greater, the examination of a portion of the peripheral blood will reveal erythrocytes and hemoglobin levels lower than in the non-pregnant state.

This work has been amply confirmed but there are still many who feel as does Dr. Evans, that the fetus

in its demands for iron will parasitically draw on the mother's iron supply and thus produce an iron deficiency anemia. At first glance Dr. Evans' figures would tend to confirm this.

Limarzi and I have been interested in this problem and at the Research and Educational Hospital are now making a study of the bone marrow findings and the peripheral blood during pregnancy. Although this has not yet been completed, our studies of the hemoglobin and erythrocyte levels are similar to those of Dr. Evans.

A drop in the hemoglobin is noted at the fourth lunar month. This gradually proceeds until a low level is reached at the eighth lunar month. The hemoglobin then returns about half-way to normal near term and becomes normal by the fourth to eighth postpartum day unless affected by either hemorrhage or toxemia. The erythrocyte count shows a similar curve but not as great a lowering as with the hemoglobin.

The bone marrow becomes hyperplastic at about the fourth month and remains as such for at least six weeks post-partum.

But none of our cases have received any medication or dietary advice during the course of the pregnancy. They are the controls lacking in Dr. Evans' report.

The author quotes Labate's observations with the use of controls. It has been shown in the non-pregnant individual that the erythrocyte of a normal, healthy adult is not saturated with hemoglobin. Iron therapy given to such individual will raise the hemoglobin level one to two grams. This rise will continue as long as therapy is given but the original level will again be reached as soon as iron medication is discontinued.

I feel that we make a great mistake when we expect the normal blood values of a pregnant woman to be identical with those of a non-pregnant individual. We must realize that profound metabolic and circulatory changes incidental to gestation will alter the status of the circulating elements of the blood. To carefully analyze the need and result of treatment, let us first find out the blood changes that occur during a so-called normal pregnancy.

Since these changes are not apparent before the fourth lunar month, any patient seen before this time presenting a hemoglobin below 80% or an erythrocyte count below four million deserves a complete blood study and appropriate therapy. From the fourth to the ninth lunar month, one should be concerned only when the count falls below three million and the hemoglobin level below 60%. At term three and a half million erythrocytes and 70% hemoglobin are the normal.

My personal observation is that we tend to neglect a true anemia developing immediately postpartum as the result of a blood loss during labor and the puerperium. It is well to check the blood at the eighth postpartum day in all such individuals.

I thank Dr. Evans for asking me to discuss the paper. I hope he will continue his observations on the use with iron and the use without iron.

Thank you.

Dr. E. Graham Evans, (Aurora): I appreciate Dr. Wolff's remarks. It shows, as I told you when I started that there is a lot more to it than appears to the eye. I do not feel that this question of anemia in pregnancy has been settled. As Dr. Wolff has said, there is a great deal of difference in opinion as to actually how much true anemia does develop, but I find here, according to Dr. Wolff's own standards, that is, a hemoglobin of less than 60 per cent, thirty-three and a third per cent of my apparently normal, healthy prenatal patients have anemia, — which is certainly a very high number.

I feel there must be a great deal more work done before this question of the existence of anemia of pregnancy is entirely settled.

I thank Dr. Wolff for coming down and discussing my paper.

THE PHYSIOLOGICAL BASIS OF PARENTERAL FLUID ADMINISTRATION

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CHICAGO

It can probably be said that the enteral administration of fluid is the only truly physiological method; but under certain circumstances, when it is impossible to give fluids by mouth, parenteral fluid administration may be made to approximate physiological intake of fluid if certain fundamentals are kept in mind. These may be considered from two points of view: the circulatory effects of parenteral fluid administration, and the changes in the electrolyte balance. These aspects will be briefly reviewed.

The relation between the two compartments, the plasma and the interstitial fluid, is maintained by the balance between the hydrostatic pressure within the vascular bed, tending to cause transudation of fluid outward, and the osmotic pressure of the protein colloids of the plasma, tending to withdraw fluid from the tissues into the blood stream. This conception of Starling is shown by figures representing the pressures as measured by Landis, drawn on the famous diagram of Gamble's illustrating the relation of the fluid compartments of the body.

From the Department of Pediatrics, University of Chicago.
Presented before the Section on Pediatrics, 102nd Annual Meeting, Illinois State Medical Society, Springfield, May 20, 1942.

It is to be emphasized that the relation represents a dynamic state, and that change in flow in either direction occurs constantly with the changes in capillary flow and pressures, and the plasma volume, and hence the blood volume changes readily. The blood volume accommodates itself to the size of the vascular bed, and this accommodation is secured by the exchange of fluid between the blood and the interstitial fluid compartments, so that if dilatation occurs in one region, there is change in volume, as well as compensatory constriction in another, to make the blood volume and the vascular bed fit one another.

It is necessary to present the factors involved in the normal balance of fluid within the body as a basis for consideration of treatment, since it is a proper balance that is the object of treatment.

The actual values for these compartments may be measured relatively simply. The method consists of injection intra-venously of two substances, one of which will not perfuse out of the vascular compartment, so that the plasma volume may be measured, and one which will readily leave the vascular system and distribute itself throughout the interstitial fluid. The first is a blue dye, and the second is sodium thiocyanate. If you inject a known amount, and then after mixing is allowed, determine the amount in 1cc. of plasma, by dividing one by the other, the amount of plasma and total available fluid may be measured, respectively.

The values for blood volumes of normal children approach 90cc. per kilogram of body weight, and are a little higher in the very young.

The values for total available fluid when related to surface area and weight in kilograms, are quite different. It will be noted that in relation to weight, the total fluid varies between 280 and 320 cc. per kilogram of body weight, slightly higher values being found in the young. The total fluid values are high in edema, and low in dehydration, as might be expected; but it could not be expected that the total fluid would be high in simple malnutrition, or be low in obesity and in infants.

The effect of dehydration on these volumes is to diminish them so that the available fluid within the body, the reserve for the maintenance of blood volume, becomes depleted. While it is probably true that to some extent the plasma volume and hence the blood volume is supported by the interstitial fluid, diminution to any degree of the latter is early associated with diminution of blood volume. This may be stated simply by saying that if fluid loss causing dehydration occurs slowly, the blood volume will be supported and maintained by the interstitial fluid, but if the factors causing dehydration act rapidly, blood volume will be rapidly reduced, and is not maintained by the interstitial fluid. This is shown by the ease with which elevation of the red blood count, and elevation of the plasma proteins occur relatively early in progressive dehydration associated with vomiting or diarrhea. This is more noticeable in infants and can be explained partly by the relatively small extra-cellular fluid volumes in relation to surface area, so that the support offered by this reserve to the maintenance of the blood volume is less.

In acute toxic febrile illnesses, as pneumonia for example, the appearance of a condition resembling circulatory collapse and shock leads sometimes to the casual diagnosis of dehydration. Ebert and Stead have shown, however, that in this so-called medical shock, there is no evidence of diminished blood volume in spite of the decrease in peripheral blood flow and lowered blood pressure. The effect is a general one affecting the entire cardio-vascular system, and it is in similar instances that we are surprised when subcutaneous fluid is poorly absorbed, or intravenous fluid causes no appreciable change in the state of the peripheral blood pressure; there is no dehydration to the degree that clinical examination indicates.

The circulatory effects of fluid administration are slow or rapid, depending of course on the method used, intra-venous or subcutaneous. With intra-venous fluids, the blood volume is restored at once and this is the method of choice in severe dehydration, since with the poor peripheral circulation due to diminished blood volume, subcutaneous fluids will not be readily absorbed, even if the circulation desperately needs them. The recommendation that subcutaneous fluid be given, so that "it can be absorbed as needed" is thus not always a fortunate choice of method.

When hypertonic intra-venous fluid is administered, most frequently hypertonic glucose, there is a rise in the plasma and blood volumes

and a transient increase in venous pressure, as shown by Ellis and Faulkner. In defects in the circulation associated with cardiac failure and venous engorgement, such hypertonic solutions must be given with caution, since it is possible to quickly increase the plasma and blood volumes at the expense of the interstitial fluid.

In such a circumstance, that is, when there is circulatory embarrassment, when fluids or blood must be given intravenously, a simple measure of circulatory distress is elevation of the venous pressure, seen as engorgement of the peripheral veins, or better yet, directly measured. This pressure can be measured accurately and simply with the use of a readily available instrument, the spinal fluid manometer. The arm is abducted away from the body at least 45 degrees, the antecubital space is put at a level midway between the front and back of the chest, the syringe and needle and three-way stop-cock, filled with saline placed on the arm and the needle inserted into the vein; and then if the stopcock is turned so that the manometer is connected with the vein, the venous pressure is read directly in the column of blood in the manometer. The upper limit of normal is 100 mm. of water, and when the venous pressure is above this, or rises during intra-venous administration, or does not drop to the base level, circulatory distress is present. Considerable experience with this in children indicates that it is a valuable adjunct in instances when the competence of the circulation is in doubt.

Changes in the electrolyte equilibrium are usually associated with dehydration and reduction of plasma and fluid volumes. When this diminution is sufficient to reduce renal blood flow, the renal mechanism for compensatory control of the acid-base balance cannot function. This mechanism rests on the fact that electrolytes can be selectively retained by the normally functioning kidney. When retention of base in the plasma is necessary to combat acidosis, acid radicals are then excreted in the urine covered by the ammonium radical synthesized in the kidney; and when excess base is to be excreted in the presence of alkalosis, and it is desirable to conserve chlorides, base is excreted in the urine covered by bicarbonate, which is made readily available by respiratory regulation and retention of carbon dioxide. It is the respiratory regulation of the acid-base balance that gives clinical respiratory symptoms, especially noticeable in acidosis. When the bicarbonate of the blood is reduced in acidosis, the carbonic acid is likewise reduced to compensate for this by increasing the size of the aveolus and reducing the carbon dioxide tension by deep breathing.

In the presence of a normal kidney, where the renal regulation is unimpaired, the defects in fluid volume and in electrolyte equilibrium may be overcome by supplying an abundance of fluid and a neutral electrolyte in the form of normal saline solution. The normal kidney, by means of the mechanism of selective retention of the needed electrolyte, and excretion in the urine of the excess of either sodium or chloride by the mechanism mentioned, establishes a normal acid-base balance. If, in addition, glucose is given, ketosis will be corrected. It is true that electrolytes in excess of amounts that can be managed by the excretory mechanism of the kidney may be inadvertently given. Where laboratories are available, the amount can be controlled by frequent chemical determinations. When these cannot be obtained, it is wise to alternate freely simple solutions containing only glucose and water, for the prevention of edema. This is particularly true in the new-born, where the plasma proteins are usually about the edema level, and excess chlorides quickly establishes edema. Here simple glucose solutions must be given preference.

SUMMARY

1. Blood volumes in normal children are 85-90 cc. per kilogram of body weight; in the obese lower, and in infants higher.
2. The total available fluid values are in the range between 280 to 320 cc. per kilogram of body weight; this is increased in malnutrition, in edema, and is low in the obese and in dehydration, and is low in infants when related to surface area.
3. These volumes are easily reduced in illness, especially when associated with vomiting or diarrhea; and when the blood volume is reduced, the renal control of the acid base balance is interfered with.
4. While the fluid volume may be measured by laboratory methods, clinical estimation of dehydration continues to be difficult. The

weight follows the fluid volumes, and this and the clinical appearance continue to be the only bedside criteria of dehydration available at present.

5. The circulatory and renal function, and electrolyte defects may be restored by parenteral administration or normal saline and 5% glucose. The necessary amount may best be judged by the maintenance of weight, maintenance of moisture in the mouth, and best of all, maintenance of urinary output.

6. In circulatory failure or distress, subcutaneous fluid is not readily absorbed; and when administering intravenous fluid in the presence of circulatory distress, it is wise to follow the venous pressure, which may be simply done.

TECHNIC OF INTRAVENOUS INJECTION IN INFANTS

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CHICAGO

Giving a transfusion to an infant is not difficult, if the method and apparatus used are subordinated to the successful insertion of a needle into a vein and maintaining it there. Two technics are available, the less certain method of penetration of the skin and vein with a sharp needle and the more reliable method of exposure of the vein by dissection and entering with a blunt needle.

The first or sharp method appears to be the simpler of the two, but in actual practice it is the more difficult and frequently carries a higher percentage of failure. This varies directly with the skill and experience of the operator.

Various veins have been used for this technic. Of all, the scalp veins are the most commonly employed. These veins usually lying in palpable scalp grooves, can be seen coursing over the baby's head in the temporo-parietal region to form the anterior facial vein above the ear.

After selecting the vein and judging it to be of sufficient size for cannulation, the baby is immobilized by wrapping in a sheet or blanket so that its arms and legs may be effectively controlled and out of the way. It is important to be certain that this has been correctly done and that the restraints are secured by safety pins.

The child is placed on its abdomen or back. The assistant holds the baby's head firmly, one hand over the occiput, the other over the face, care being taken not to interfere with respiration. The operator sits at one end of the operating table with the head towards him.

In this position, the needle can be inserted in the direction of blood flow. The fluid to be given is placed in a gravity container and connected with a short bevel 23 or 24 gauge needle usually ¾ inch long. The needle is slowly pushed thru the skin of the scalp into the vein, great care being taken to stay as superficial as possible to avoid puncturing the opposite vein wall. To facilitate the entrance into the vein, the needle may be fitted to a syringe and after successful entrance as evidenced by aspiration of blood, the glass adapter of the gravity set may be carefully substituted for the syringe or else a Kaufmann-Luer syringe may be used to combine the two steps. The fluid is allowed to run in by gravity. This frequently requires an unusual length of time because of the small bore of the needle. This can be expedited by using a three way stopcock and a five or ten cubic centimeter syringe, blood being aspirated from the container into the syringe and after turning of the stopcock, is injected into the patient.

This sharp method except in the hands of practiced operators is more likely to fail than succeed because of the great difficulty experienced in entering the vein and holding the needle in place.

The second method actually exposes the vein by dissection and then threads it with a blunt needle. The technic is quite simple; but does require strict adherence to detail. The vein most commonly used is the small saphenous found just anterior to the internal malleolus. This vein cannot always be seen; but if it is present it can always be felt by drawing the thumb firmly across its course. If it is present, a characteristic roll or snap is experienced. Unless this vein can be demonstrated by sight or feel no vein will be found on dissection, since it it not always present. After the vein has been

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located, the ankle is restrained by taping the foot in external rotation to a padded splint with one inch adhesive tape. The tape is applied to the underside of the splint at the heel side. It passes up and over the heel over the medial aspect of the foot and toes and down and around the underside of the splint around once more to the heel side over the instep and down and around to be secured on the underside of the splint. If this has been correctly done, the foot is firmly bound to the splint. The assistant seated alongside of the baby holds the splint down on the table. This method of holding immobilizes the splint and so the foot.

The site of operation is prepared with iodine and alcohol. The adhesive tape immediately adjacent is also liberally sponged with the solution since it sometimes projects into the field. With the vein's position definitely known, a local anesthetic is injected directly over the center of the vein. The wheal raised obliberates the vein, but the needle mark then acts as a marker, accurately locating the underlying vein.

Two towels are used as sterile drapes. The first laid down so that its lower edge just touches the needle mark and becomes the upper half of the field. The second towel is laid so that its upper edge touches the needle mark and becomes the lower half of the field. The towels are then fixed to the splint with towel clips on either side of the leg. By folding under the edges of the towels over the vein, the small area needed for the transfusion will peep thru. A sharp No. 11 Bard-Parker knife is used to make a small incision transverse to the vein. The incision should be between one eighth and one quarter of an inch long and need never to be any longer. It is made across the course of the vein and directly thru the needle mark so that one-half of the incision lies on either side of it. The vein then lies directly under the center of the incision. The wound is spread with a forceps and the vein is scooped up with an iris forceps. If successfully done, it lies like a shiny pearl ribbon across the forceps. A piece of catgut is passed under the vein by catching it in the free end of the forceps. This is to act as a guy to lift the vein out of the wound. A small opening is cut in the vein wall with the sharp pointed iris scissors after fat and adventitia have been cleaned from it. Thru this opening a blunt No. 22 or No. 20 needle is made to slip into the vein. To secure the needle in position and prevent its being pulled out, a forceps with a notched tip is clamped on the needle catching the vein and needle in its jaws.

With the needle securely in place, the operator may use any method or apparatus to complete the transfusion. At its completion, the vein is not tied off and no sutures are used to close the incision. A tight pressure bandage controls bleeding and allows the skin edges to closely approximate giving eventually a small scar.

If continuous intravenous fluids are to be given, the needle is tied into place with a dermal ligature and the needle and canula are taped securely to the skin of the ankle.

INDICATIONS FOR BLOOD TRANSFUSION AND FOR THE INTRAVENOUS USE OF SALINE AND NUTRIENT SOLUTION

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The rationale of blood transfusion should be approached from three broad viewpoints as follows: (1) loss of whole blood, or any of its constituents from the circulation, (2) inability on part of the body to supply adequately the constituents of blood, and (3) stimulation and addition of immune substances.

Loss of whole blood or any of its constituents from the circulation includes a wide variety of conditions. It is unnecessary at this time to discuss the reasons for transfusion in cases of acute, massive hemorrhage. First, let us consider the red blood corpuscles. There may be a loss of blood corpuscles within the body such as in acute hemolytic anemia, sicklecell anemia, and Cooley's erythroblastic anemia leading to a severe anemia. Perhaps at this point it might be well to consider those conditions in which the body has lost the ability to supply adequately red blood corpuscles. Nephritis, leukemia, aplastic anemia, and secondary anemia may be mentioned. Secondary anemia deserves considerable comment. Any prolonged illness, be it infectious or

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non-infectious, will lead to secondary anemia. With a reduction in the red blood cells, there is a diminution of the capacity of the blood to transport oxygen. The hematopoetic system makes an effort to compensate for this, but it is likewise affected by this oxygen deficiency. The giving of blood in these conditions is often dramatic. By restoring red corpuscles, the hematopoetic system is given a chance to regain its normal functions.

In regard to white corpuscles, it may be said that replacement therapy is somewhat disappointing. It is a well-known fact that white corpuscles are not increased by transfusion as are red corpuscles. Transfusions are very definitely indicated in aplastic anemia, and agranulocytic angina. However, it is probable that any benefit derived is due to the rest afforded the hematopoetic system, and to the stimulating factor.

Disturbances in the clotting mechanism can best be considered if one remembers that prothrombin, thromboplastin, calcium, and fibrinogen are necessary to produce clotting. Prothrombin deficiency is found in obstructive jaundice, parenchymatous liver damage, and hemorrhagic disease of the new born. The synthesis of prothrombin by the liver depends on the presence of Vitamin K; but if there be severe liver damage, blood transfusion is necessary to supply prothrombin even in the presence of adequate Vitamin K.

Thromboplastin is found in the platelets. Such conditions as primary thrombocytopenic purpura, aplastic anemia, leukemia and possibly hemophilia cause disturbances in platelets. Fibrinogen deficiency is quite rare, but may occur in pellagra, scurvy and severe liver damage. As far as is known, there are no hemorrhagic diseases associated with calcium deficiency alone.

In recent years the importance of blood proteins has been brought to the foreground. Nephritis, extensive burns, traumatic shock and malnutrition are good illustrations of loss of blood proteins. The role of proteins is not well understood. It would seem that there probably exists a balance between the tissue proteins and the blood proteins, much as in case of carbohydrate blood and tissue balance. Colloidal osmotic pressure of the blood seems to be dependent on proteins. For the present, protein deficiency seems best remedied by use of blood plasma, or serum. However, it seems probable that the future holds promise for protein replacement in the form of amino acid combinations, one of which is casein hydrolysate.

Finally, there is no more important indication for blood transfusion than in those cases of severe infections or debilations. The exact mechanism of this procedure is not known, but certainly the stimulating effect is often dramatic. Any infant or child who is not responding well to medical treatment should be considered a candidate for blood transfusions. Pneumonia, mastoiditis, peritonitis, malnutrition and diarrhea are a few of the examples.

In regard to the indications for the use of saline and nutrient fluids one must consider the deficiency from which the child is suffering. If acute dehydration is present, one may use 5% glucose in water or in saline, Ringer's solution or lactate Ringer's solution. If there be loss of electrolytes from the body as in case of diarrhea or dysentery, replacement should be made with saline, or preferably, lactate Ringer's solution. Glucose solutions in 5 or 10% strengths are widely used as nourishing agents in pneumonia, acute rheumatic carditis, and acute liver disease. Glucose seems to have a direct nourishing action on body cells. There is great promise that some day we may have a practical method for intravenous use of proteins. We have need for proteins in cases of malnutrition.

At this point it is wise to correlate the proper indications for all of the fluids which have been discussed. First, the child should be appraised as to its deficiencies, and secondly, we should try to give these various solutions in their proper sequence. By way of illustration, let us consider extensive burns. In cases of burns there is loss of blood protein from the blood to the tissue fluids with a resultant hemoconcentration. The proper fluid to administer in this instance is blood plasma or serum. Whole blood, glucose or saline solutions are contraindicated. Another illustration is dehydration associated with diarrhea. In this condition, loss of water and electrolytes from the body is the important factor. The proper fluid to be used is saline or lactate Ringer's, followed by blood transfusion for its stimulating effect. I feel that if one studies the problem at hand in detail and realizes what deficiencies are present, one can readily determine the indications for fluids and, most important, their proper sequence.

THE PARENTERAL ADMINISTRATION OF VARIOUS THERAPEUTIC AGENTS

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Some therapeutic agents must be administered parenterally to be effective. Under certain conditions, it becomes advisable or necessary to administer parenterally, medications which are ordinarily adequately effective by mouth. In this discussion, the writers will review the various therapeutic preparations which are generally accepted for parenteral treatment, and those various methods of, and indications for this type of therapy whose usefulness and dependability clinical experience has well proven.

INTRADERMAL TESTS

By the intradermal administration of certain sera one may evaluate the body's response or lack of response to specific allergins and thus indicate or not the need for prophylactic therapy.

The Schick Test. With the mother or assistant holding the child grasp the forearm firmly with the left hand and spread the cleansed skin moderately tight between the thumb and index finger. With the other hand holding the syringe, bring the needle parallel to the skin and in line with the arm. Slide the needle point along the skin until the point catches, enters the epidermis and the bevel just disappears from view. Inject .1 of the Schick material causing a small wheal to rise which rapidly disappears. If the test is positive at the end of the forty-eight hours, a brownish area of approximately 1 cm. or larger appears which may persist one to ten weeks before it fades. A red area around the needle scar which disappears in twenty-four to forty-eight hours, indicates merely a sensitiveness to the sera, not a lack of immunity to the diphtheria toxin. The Schick test should be performed six months after the active immunizations, at the end of succeeding five year intervals, and also with an exposure to diphtheria.

The Dick Test is given in the same manner and amount into the forearm. The reaction appears in eight to twelve hours and should be read between eighteen and twenty-four hours after injection. It is positive if there is even a slight redness or flushing of an area 1 cm. or more in diameter. There is a direct correlation of the degree of reaction and the sensitivity of the patient. This test is of value for diagnostic purposes. The Dick test is positive for the first three days of scarlet fever, so that a Dick test done when a suspicious looking rash is first seen that on second test three days later is negative is a certain diagnostic criteria. Also a child exposed to scarlet fever who has a decided reaction to the test can be given prophylactic antiserum or convalescent serum, whereas the negative or weakly positive reactors may await the onset of illness before treatment is begun.

The Schultz-Charlton Reaction. Pick the point where the rash in question is most marked, usually the thighs or abdomen, inject intradermally .1 cc of the material one would use for active treatment of the condition. This may be human convalescent serum or scarlet fever antitoxin. If an area of blanching over 1 cm. occurs six to twelve hours later, two things are established. First that the patient has scarlet fever and second that the human convalescent serum or the scarlet fever antitoxin, whichever was used, will be effective in treatment.

Tuberculin Test. Sensitization to tuberculosis may be tested by intradermal injection of .1 cc of 1-10,000 dilution of old tuberculin followed if this is negative by 1-1,000 old tuberculin. A positive test means only that the patient has been sensitized to tuberculosis and further information must be obtained by x-ray studies and guinea pig innoculations of urine or pus pockets. In known active tuberculosis the tuberculin test is contra-indicated, first because it may light up a latent area of infection and second because in a highly sensitized person a terrific reaction and local slough is quite apt to occur. It is well to remember that a patient overwhelmed by tuberculosis — as is often seen in a tuberculosis meningitis — a sensitivity to the tubercle bacilli is not present and the child dying with the overwhelming infection will give a negative test. Although its relative accuracy is still questioned, one may choose to use the patch test.

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Serum Reactions. There are certain special sensitivity tests beyond the scope of this paper. These are primarily the specific allergy tests. However, it behooves every practitioner to know and make use of the sensitivity tests for horse serum and rabbit serum when using foreign proteins as is necessary in pneumonia, tetanus antitoxin and in influenzal meningitis. With these one should have a syringe of adrenalin available and give a preliminary skin test dose.

Smallpox Vaccination. Vaccination is a modified intradermal injection administration. It is generally considered better to vaccinate high on the arm over the deltoid muscle. Cleanse the arm with soap and water followed by alcohol and ether to dry. Place the drop of fresh virus which must have been kept in a cool place, on the arm and holding the point of the needle parallel to the arm press the point into the skin through the drop ten to twenty times. This is done in an area not to exceed two millimeters in diameter. Use no bandage. If done properly with active vaccine adequately preserved every patient should get a take, an accelerated take or an immune reaction. Every child should be vaccinated against smallpox during the first year of life, each succeeding six years, and if exposed to the disease.

SUBCUTANEOUS THERAPY

Subcutaneously there are surprisingly few commonly used medications. The active ones are:

Whooping Cough Immunization. This should be given in three injections at three or four week intervals, beginning at six or eight months of age. The writers have found it practical to give these injections at the time of the sixth, seventh, and eighth month's physical check-up examinations. The amounts administered are 1 cc, 2 cc, and 2 cc of the double strength vaccine. This supplies a total of 90,000 millions killed bacilli. It is our policy to give the vaccine as superficially as possible even to giving some intercutaneously and slowly give the rest deeper in the more yielding tissue. Occasionally a patient may have a mild febrile reaction with some pain. This usually responds promptly and satisfactorily to one or two grains of acetylsalicylic acid, repeated at two hour intervals if indicated.

Diphtheria Immunization. The alum precipitated toxoid is given at 3 to 4 week intervals. The writers start the ninth month and give three injections — .5 cc at nine months; 1 cc at ten months and 1.5 cc at eleven months. This material should be given deep subcutaneously or even intramuscularly. It is a good plan to caution the parents that a lump may persist for several months which eventually disappears; this may be due to the formation of a sterile abscess and may leave a superficial scar or dimple at the site of the injection. Since the alum diphtheria-tetanus toxoid has become accepted, it is our practice to thus combine the immunization to diphtheria and tetanus.

Tetanus Antitoxin. We have given this to all patients with dirty wounds and with wounds occurring where the cutting object has been exposed to street or barnyard dirt. The dose is at least 1500 units (one prophylactic dose) given subcutaneously. A serum sensitization skin should be made beforehand. If the child has received tetanus toxoid the antitoxin is unnecessary. If two years have elapsed since active immunization a ½ cc stimulating dose of tetanus toxoid is given.

Typhoid Immunization. Typhoid vaccine is given in instances of possible water contamination as, for vacations, in disasters or in outbreaks. Three subcutaneous doses of .5cc, 1 cc, and 1 cc are used at three week intervals.

Vitamin K falls in the domain of obstetrics in which the mother is given 1 cc of vitamin K prior to childbirth. Occasionally a cephalahematoma occurs in a newborn and it happens that in all cases we have seen the mother either had received the vitamin K just before delivery or the medication has been omitted. The classic response is in the hemorrhagic disease of the newborn where absence of vitamin K is the etiological factor and replacement is followed by recovery.

HORMONE THERAPY

Insulin needs mentioning to recall the case of protamine zinc with its slow absorbing characteristics and the newer crystaline insulin that absorbs a little faster than protamine. The crystaline insulin may be utilized with the protamine zinc for the twenty-four hour diabetic control giving the two materials at one time of the day.

Suprarenal Extract. The little understood suprarenal extract we believe will play an increasing part as time progresses. Certain newborns as well as young infants who seem to lack the desire to eat, are dehydrated and have no apparent pathology, often respond remarkably well to subcutaneous administration of ½ cc of suprarenal extract every four hours. This seems to maintain over a longer period the temporary effects attained by administration of epenephrin.

Anterior Pituitary Hormone is valuable in the treatment of the endocrine deficient obese child.

Anterior Pituitarylike Sex Hormone from pregnancy urine is used in the initial treatment of undescended testicles in Frohlich's syndrome in genital hypoplasia and in selected instances of hypomenorrhea or amenorrhea.

DRUGS

Sodium Phenobarbital hypodermically is useful in certain cases, particularly those with persistent convulsions or vomiting. The dosage is approximately one-half of the oral one, generally ¾ gr. to 1½ gr. with frequent repetitions as needed.

Morphine is rarely indicated and is usually contraindicated in pediatric practice.

Atropine is now seldom given hypodermically to children. In cases of laryngeo tracheo bronchitis it is definitely and positively contraindicated.

Codeine. Hypodermic injections of codeine are of value with older children for control of severe pain and preoperatively. It is our impression that smaller repeated doses of ⅛ gr. or ¼ gr. are less apt to produce untoward reactions than are larger doses at longer intervals.

Epinephrine, Caffine Sodium Benzoate and Coramine have their places as stimulants.

INTRAMUSCULAR THERAPY

Diphtheria Antitoxin divides into three classes. The non-immunized or known Schick positive contact with diphtheria should receive passive immunization of 1000 units of diphtheria antitoxin intramuscularly. The mild case of diphtheria — that is one with a tonsillar or laryngeal diphtheria without the bull neck — should receive 20,000 units of diphtheria antitoxin *intramuscularly. Suspect cases are often over*dosed and get a rather severe serum sickness from too much antitoxin. In the severe diphtheria cases 40,000 units is usually adequate and over 60,000 units is a waste of material. The main factor is to give early administration of antitoxin in a small dose not waiting for culture reports. Give the antitoxin in the lateral aspects of the thighs. This is the least painful area. Warm the antitoxin to body temperature being careful not to destroy it with too much heat.

In Scarlet Fever Therapy, the active treatment depends on available material and may be human convalescent serum given by intravenous route (discussed later) or scarlet fever antitoxin intramuscularly. As Dr. Hoyne of Chicago once said, "How do you know on the spur of the moment what dose of antitoxin to prescribe?" Perhaps the exact dose has been forgotten. He says prescribe "one therapeutic dose" which in this case is 9000 units given intramuscularly and repeat in twenty-four hours if necessary.

In Measles Therapy the treatment has one of two aims, either to temporarily completely protect a sick and dibilitated patient or to modify the disease of a normal patient after exposure. In the complete protection no immunity is attained, in the partial protection immunity with a mild case of measles is the aim. For complete protection either 10 cc of convalescent serum, 40 cc of whole blood or 5 to 7 cc of immune globulin given intramuscularly one or two days after exposure is usually adequate. For partial protection give 5 cc of convalescent serum, 20 cc of whole blood or 2 to 5 cc of immune globulin within the first six days.

Bismuth intramuscularly is of value in connection with oral stovarsal in the treatment of syphilis in children. The exact procedure is too intricate to permit discussion here.

Liver Therapy is often an adjunct to the treatment of profound anemias, given intramuscularly.

INTRAVENOUS THERAPY

Blood intramuscularly was referred to above. It was previously quite popular and is still valuable. In newborns it gives some protection *and has some therapeutic value. However, where* blood is indicated with present methods intra*venous blood is preferable. For the seriously* ill child small repeated transfusions of 75 cc

to 150 cc of fresh citrated whole blood not only yield many specific antibodies but also give the general tonic value of a transfusion.

Drugs

Sodium Sulphathiazole Sesquehydrate is one of the extremely important intravenous medications. With vomiting, overwhelming sepsis, coma, or with oral medications contraindicated, it becomes necessary to give the treatment by vein. We may say that in any severe bacterial infection where the tissue has been invaded, but not destroyed this drug may be used. Some have said that Sulphathiazol is not excreted in the spinal fluid, however the work of one of us (R.H.) has consistently shown that the spinal fluid concentration is about one-half that of the blood concentration. This seems to be sufficient to bring about the desired therapeutic results. The technique of administration was splendidly discussed in a prior paper. The amount to be administered varies with the size of the patient and the severity of the infection. One may start with one or two grains per pound of body weight per day. With the intravenous treatment one should give one-half the total first days concentration and then dividing the total days dose into four administrations, allow two hours for each fractional medication and inject them at four hour intervals. The drug concentration of the solution should be between 2% and 5%. This may be gotten by dissolving 15.4 grains or 1 gram of the material in 50 cc of triple distilled water.

After the medication has been given for eighteen to twenty-four hours, the continuation of therapy depends on several factors:

1. The blood concentration. In a severe infection this should be between 7 and 14 mgm. percent and the dosage varied according to the level.

2. The response of the patient. An improving patient may need a lower level or may be able to take the drug by mouth.

3. The urine examination. This may show albumin, casts, blood or crystals or very rarely annuria may occur. Then the clinical picture needs reviewing as to the possible cause of the urinary symptoms. At least one daily urine examination should be required.

4. The blood count. A rapidly falling white blood count, going below normal indicates a need for caution, although a falling red count is more an indication for transfusing the patient than for discontinuing the drug. A marked Schilling shift to the left is an indication to discontinue the drug.

5. The fluid intake by vein. Dr. C. Anderson Aldrich has cautioned again and again about giving too much intravenous fluid. The maximum total fluid intake of the patient should not exceed three ounces per pound per day. Overhydration is easily done when one considers that blood transfusions and glucose may be given between the medications, plus the fluids in the medication plus the oral intake. Therefore the administration should be slow, measured and carefully watched.

Sodium Sulphadiazene is recently available and is said to be as effective as the other sulfonamides with less untoward reactions. However, for the present, except for its occasional untoward reactions, it is our impression that sodium sulphathiazole seems usually more effective therapeutically than does sodium sulphadiazene.

Sodium Sulphapyridine is a dangerous drug in that it excretes slowly and crystals form easily in the kidney tubules leading to hematuria and albuminuria. Hence with this drug the blood and urine should be watched even closer with perhaps two urine specimens daily as well as the daily blood concentration of sulphapyridine. In spite of this danger we believe it advisable to use this drug in pneumococcic meningitis and influenzal meningitis. We have had some satisfactory results with the sulphapyridine alone in this latter disease; with the additional use of Type B-Haemophilus influenza antiserum as prepared from rabbits by Alexander perhaps the results are even more successful.

Sulphanilamide is soluble only to the extent of .8 to 1%. This concentration makes it necessary therefore to dissolve it in normal saline. All the other sulfonamide groups are dissolved in distilled water and should neither be mixed with saline nor with glucose solution.

Magnesium Sulphate Like Hypertonic Glucose is utilized in dehydrating the tissues and thus relieving cerebral pressure. These drugs *are used in treating severe head injuries and* severe lasting convulsions.

Serums

Serums given intravenously are either human or animal. The animal serums are usually rabbit or horse.

The Anti-Pneumonia Serum provided by the State is a rabbit serum. Its administration is not without anaphylactic reactions. Pneumonia serum is seldom indicated in uncomplicated pneumonias, however in pneumonococcic meningitis and pneumonoccic septicemia, the antiserum as well as the sulfonamides are indicated. The drug should be started immediately. Then as directed on each package do the skin or ocular sensitivity tests followed by an injection of 2 cc of test serum and follow this by 100,000 units of the specific antipneumonia serum. Dilute the serum with 500 cc of normal saline as a further precaution. Give this 500 cc mixture by drip at forty to fifty drops per minute. An open ampule of adrenalin should be available at all times.

The Alexander Anti-Haemophilus Influenza Serum just discussed comes in 25 mgm. ampules of powder. The powder is dissolved in normal saline. The same precautions should be followed as with the administration of anti-pneumonia serum.

For Meningococcic Meningitis the treatment has changed in recent years. In the Chicago Municipal Contagious Hospital it has been customary to treat such cases with meningococcus antitoxin 50,000 units to 100,000 units dissolved in 500 to 1000 cc. of 10% glucose in saline with 5 to 15 mgm. of epinephrin added. However lately the treatment has been superceded by the use of the sulfona nide drugs. At one time one of us (R. H.) had a case responding well to the use of sulphanilamide as had been started outside, a second to sulphathiazole as had been started outside, and a third with sulphadiazene as used by us in the hospital with apparently equally good results. One point — any case with petechiae and meningeal symptoms should be considered meningicoccic meningitis until verified by spinal tap.

In Scarlet Fever, already discussed from the standpoint of diagnosis and active treatment with antiserum, the preferable active treatment if it is available, is the injection of 20 to 40 cc of convalescent pooled serum intravenously in complicated or severe cases. The disease generally subsides as if by magic and the course is so changed that one wonders at the simplicity of the disease. Occasionally the serum is not adequate or needs repeating. The serum however, will not undo damage already done. Even with this apparent return to normal the two weeks of convalescence with bed rest is necessary to avoid later complications. Early in scarlet fever the sulphonamides have surprisingly little effect although they aid considerably in combating the complications.

Intraspinal Medications are no longer deemed advisable. It is our opinion that spinal taps should be done for diagnosis only and should be repeated only if there is doubt as to the patients condition or progress. The majority of our meningitis cases receive but one diagnostic spinal puncture.

SUMMARY

This paper is a resume of the useful and dependable types of parenteral therapy. It includes the generally accepted common methods, indications and interpretations used in the administration of the various types of therapeutic agents.

The intradermal, subcutaneous, intramuscular, intravenous and intraspinal routes of medication have each been discussed as clinically used by the pediatrician.

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DISCUSSIONS ON PAPERS OF DRS. CASSELS, SPIVEK, MCKINNEY, BARBOUR AND HART

Dr. F. W. Schlutz, Chicago: Dr. Cassels has given us a very fine clear analysis of the processes which underlie the intravenous use of various physiologic fluids. They are not always safe to use in all cases and they are not always indicated in all cases where you may clinically think they are. There are simple laboratory methods available to practitioners which would enable them to check with simple devices the measurement of venous pressure. One of these methods is the determination of the CO_2 of the blood. This gives a good deal of information in cases showing marked electrolyte loss.

In small infants and in prematures, we use glucose solution almost entirely at the University of Chicago Clinics. As Dr. Cassels pointed out, in premature

infants the protein concentration of the body fluids is so near the edema level that when you use anything else you are likely to run into edema.

Dr. Spivek mentioned the sequences in giving these fluids. Whether you should give plasma first or electrolytes first depends upon the condition you are dealing with. In cases of diarrhea it is our custom if there is much vomiting to give Ringer's solution followed by glucose, then frequently follow with sodium chloride or blood transfusion. This may be altered if alkalosis or acidosis is in the picture, but on the other hand, in burns it should be plasma first and then other solutions. It is important to follow that order. Except for replacement in case of hemorrhage, I think we have to be cautious in the amount of blood we use. In our clinic we are inclined more to use a small amount in blood transfusions, never exceeding 20 cc per kilo. It can be very dangerous. I am old enough to go back to the time when blood transfusions were hardly ever given. I remember a few instances where colleagues — with the best intentions in the world — gave infants 10 or 12 months old as much as 300 cc of blood, with fatal results in a few hours. You have to be careful.

Another thing I would warn against is careful selection and appraisal of the donor. I recall a solitary experience where blood was given to a two year old child from the father. In this case it was disastrous. It developed that the father had malignant peripheral arthritis, and the child developed this same condition a few weeks after the transfusion and is now a completely crippled child. I have always felt that the child in the transfusion got the thing his father had. Careful consideration must be given to the donor. We use transfusions of blood a great deal in many conditions. We have found it particularly useful in advanced cases of malnutrition. It is well to give small repeated transfusions. They seem to bring the case back better than anything I know of.

The other thing that is spectacular is the use of transfusions in severe or malignant infections, whether alone or in combination with sulfonamid therapy. We used to use transfusions with fluid intravenously, but nothing is so spectacular as the combination of the use of the sulfonamids with frequent small blood transfusions; in cases of pneumonia, laryngotracheobronchitis, and malignant sore throat. I believe the good results are due to a combination of that treatment.

We have been a little hesitant in transfusions in renal conditions, such as nephritis and nephrosis. Blood transfusions have not been so successful in these conditions as in the other conditions referred to. I think the proper use of intravenous fluids of the various types mentioned, in the proper amount and at the proper time, are really one of the greatest advances we have made in pediatric therapy. It is my impression that nothing we have had in the past has been so successful and definitely effective.

Dr. W. L. Crawford, Rockford: I have enjoyed this symposium very much, and I think we have been very well informed by the essayists. I had hoped that someone would talk about bone marrow infusion. The opportunity for its use does not come up often. I have not used it, but have been amazed at how fast it can be administered, especially in cases of prolonged illness or burns, and if someone has had some experience in this I would appreciate their comment.

I think Dr. Spivek covered a lot of territory. I do not know whether he mentioned this point. I have recently seen a nerve injury from a rather tightly bandaged leg, and I am sure he would caution you about that, if you are going to keep a cannula in for some time, and it is sometimes a question how long you can keep them in for repeated small transfusions that Dr. Schlutz spoke about.

I am interested in Dr. McKinney's references to casein digestives. I think a lot of research work has accumulated on amino acids, not only enterally but parenterally as well. I have used this a number of times, but have not had courage to use it intravenously as yet. Hartman in a recent article gave a number of cases in which he had used it intravenously and commented that many had reactions. I went over the cases and in everyone that was reported it seemed to me there was shown quite marked reaction to administration of casein.

Dr. Robert A. Black, Chicago: I am old enough to reminisce and will try to stay in the last few years. I think I enjoyed Dr. Fell's paper as much as anything I have heard. I definitely feel that this is a surgical procedure. It belongs to the pediatrician. We are trying to break into puberty and this is one place where we are trying to break into surgery. It belongs to surgery; it needs a lot of judgment as to when, how and what to do. It seems to me that as days have gone by and I have become half way efficient, I have stopped some of my subcutaneous work. If you do not have hospital facilities at hand, and particularly internes and residents, you get over-ambitious when you do not intend it.

It is dangerous, there is no question. In Iowa they had seven deaths, and some man in Massachusetts reported two deaths which he was not able to account for, although they were probably typed and cross-typed. I think we have only to look around Chicago — St. Luke's with 7,000 cases without any untoward incidents; .4 per cent in Mercy in 2,500 cases; these figures of course are not accurate. I think this is because pediatricians depend on skill and ability to select the kind of transfusion to be given.

Personally I am favorably disposed to plasma. It is easy to administer, no typing is required, and there is not so much reaction as with blood. When the red count is below two million blood should be used, but in burns or shock, with all the factors entering into shock, there is a good deal of fluid in the intercellular spaces, I think the use of plasma will be almost the same as blood, without as much reaction. Certainly in

infectious diseases like pneumonia, falling blood pressure or rising hemoglobin should make you feel that small doses of blood transfusion would be most beneficial.

It is my own practice when they do not respond well to the sulfonamide drugs, to use small transfusions, every day or every other day; doses of 50 cc. I am confident it has a very beneficial effect. I feel we have opened up, as Dr. Schlutz said, a most potent therapeutic measure. We sometimes get the wrong slant. It is easy to remember the spectacular successes, and the ones which turned out bad, but the ones for which you did not do much pass out of mind.

I wonder if you have used any ascetic fluid. I see in adults they are using that.

Dr. G. M. Cline, Bloomington: This afternoon we have heard how transfusions are done in Chicago, especially on infants. I would like to reminisce a little and tell how I have struggled with the transfusion problem in a small community during the last twenty years. In fact, I have done several transfusions and intravenous injections in farm homes, with the use of kerosene lamps and even pencil size flash lights, with one helper, my nurse. I am proud to say I have saved several babies with these procedures, however, the worries I have endured during the process can never be measured.

After locating in Bloomington about twenty years ago, Dr. Victor Lespinasse was reported to be giving a demonstration transfusion on an infant to the Doctors of Chicago at Mercy hospital. Unfortunately, I missed this. My first trials were purely trials with the Vincent tube with a rubber tube and cannula attachments. I believe the third attempt was fairly successful. Later with the aid of a very enthusiastic salesman, dressed as a Doctor, I did a successful transfusion with a newly purchased Scannell outfit. Later these cannulas opened the way to more and better transfusions. Since then I feel I have come a long way and now with modifications of the Spivek method, boasting a little, I will take my place with the most of them as to size, speed and results.

Perhaps I can add a few points of value as to the technique worked out by myself. A couple of years ago my good friend Dr. Robert A. Black, while visiting in my city, witnessed my doing a transfusion. We all know that after we reach the age of forty, it so often happens that even with bifocals our vision is unsatisfactory. After dissecting out the vein the eye strain of inserting the needle into the tiny vein was quite a problem until my office associate, an ophthalmologist, suggested that I use his illuminated loupe with its powerful magnifying lens. With this apparatus the vein literally looks as big as your finger. You can't miss. It was a pleasure to show my former teacher "the easy road" to cannula insertion. Remember this point, especially you older men, invest in an illuminated loupe, the kind the eye men use, and your problem will be much simpler. I have on several occasions easily inserted cannulas in prematures, as small as two pounds in weight; when previously my eyes couldn't take it. The electric lighted loupe is the only light you need, as a rule, for the entire operation.

My second largest problem was strapping down the infant so that I could leave the cannula inserted; the solution running; and only nurses to watch the patient so I could be sure the apparatus would continue to work, the solution removed, and the ankle dressed. We have no internes in Bloomington hospitals.

Small doses of a sedative by rectum naturally helps this problem. Tying the cannula in position is very important and, secondly, tying the extremities (tight) to boards and the bed, have to be done right in this case. My own method of restraint may vary some from your ideas but the results count. Care in the beginning makes the difference between success and failure.

I also am an advocate of blood plasma. If you as pediatricians have your own blood bank, you will never want to be without one. I have from two to four quarts of liquid plasma on hand at all times. A close bacteriological check is necessarily most important.

The value of pooled blood is well known, hence the same story is true of plasma. I also have been fortunate to keep pooled convalescent scarlet fever plasma. The collecting and care of this plasma takes time. I have spent a good many Sunday mornings in the hospital keeping the bank replenished. The donors are fairly easy to get at the time you draw blood for your whole blood transfusion by getting several to donate, telling them you will use the one that cross matches. Also when I give a patient a blood plasma transfusion I charge them for the work and ask them to furnish me with enough whole blood to replace the plasma used in their child. Of course, serology tests, fasting blood, and healthy donors are important. I find most people willing to help their baby or someone else's baby.

Blood plasma also is so convenient and valuable subcutaneously, especially for little prematures who need proteins and blood coagulants. Here the supervising nurse can readily give 10cc daily under the skin, under your direction.

Pooled plasma is valuable to have on hand at all times in infectious diseases or diarrhoeas. A year ago I had a family quarantined fifty miles away with scarlet fever. Two of the children were in isolation in our hospital with hemorrhagic nephritis. In one the hemorrhage was massive. Plasma in the middle of the night as an emergency measure saved the life. In some instances I have had to use my own supply on charity cases, thereby saving a life, without myself or the hospital having to pay the bill for commercial plasma.

In whole blood and plasma transfusions I feel we still must pay more attention to selection of donors who are free from allergic diseases. Blood should be taken from the patient with fasting stomach.

In conclusion, I again, as I have for years, want to advocate more use of extra oral fluids in infancy

and childhood diseases. A proper technique of administration of extra oral fluids is not difficult to master.

We are indebted to the essayist for his very valuable procedure and technique so well described.

Dr. W. M. Larson, Stockton: I would like to ask for comment along the line of reactions due to transfusions. We are told that most reactions are due to faulty technic and lack of care of the apparatus. Why are most reactions in whole blood and so few in plasma, which is handled more than citrated blood? Of course I am assuming that the blood has been typed and cross-matched.

Dr. Maurice Blatt, Chicago: The R.H. factor plays a part in many of these reactions. The number in postpartum women is far in excess of those in other patients and this plus erythroblastosis fetalis, icterus gravis and hydrops fetalis are believed to follow the development of sensitivity to this factor. Individuals with glomerulonephritis after repeated transfusions frequently have violent reactions time after time. Some similar sensitivity in the factor in these reactions.

Dr. Hart's use of 1,000 cc of diphtheria antitoxin is not desirable. With our present methods of diagnosis, diphtheria may be speedily recognized by smear and immunity by the blood antoxine level and Schick test. One should avoid giving prophylactic doses so as not to sensitize the individual to horse serum. If given, the dose should be at least 5000 units but there is no justification for its use in a city where the child can be watched from day to day.

The research on pertussis hyper-immune rabbit serum is being concluded. The results when used as a prophylaxis in treatment of the actual disease and in several instances in post-pertussis pneumonia have been surprisingly good.

I think this presentation has been very unusual and the statistical display has been very instructive.

In the case of premature infants, I routinely use the blood of pregnant women and give it intramuscularly. I believe that if the prematurę were in the uterus where it belongs, it would be getting hormones from its mother. We use the blood of another expectant mother to supply this need. Our mortality in 540 prematures was 19.25 per cent in 1941 including those who came in dead and we believe these small and repeated injections of blood from a pregnant woman is important.

Dr. Donald E. Cassels, Chicago (closing): I would like to emphasize what Dr. Blatt has said, and I believe the time is coming when transfusion reactions on an allergic basis will be considered more important, and that no transfusions will be given without the determination of sub-groups.

Dr. Mandel L. Spivek, Chicago (closing): I want to thank the discussors who have said so many kind things about this technic.

Dr. Crawford asked about bone marrow transfusions. That is a difficult thing for me to talk about. Transfusions can be given by perforating the cortex of the bone and giving it in bone marrow; that has been demonstrated. In the author's own description of the method, he lists a high percentage of failures in the infant. Until that is remedied by a change in technic, I do not think it is important unless as a last resort.

In restraining a baby's legs I have been opposed to putting a band around the upper part of the leg. It results frequently in stopping the intravenous drip, and if a baby cries it raises the intravenous pressure to such a height that it stops. If you press the peroneal nerve against the splint you get a permanent type of paralysis.

Dr. Cline spoke of the electric loupe. I have not used it, but I think it is a swell stunt and maybe when I am presbyopic I will use this. When the transfusion is done in the hospital or dressing room it takes only a short time and it is unnecessary to tie a child down. But when continuous intravenous drip is given it is essential that all movement be restrained, especially movements of the hands, because they will reach down and pull it out. When there is a needle in a baby's vein all four extremities should be restrained.

Dr. James D. McKinney, Champaign (closing): In his enthusiasm for giving blood transfusions one should not overdo the procedure. Often good results are obtained by giving a few transfusions rather than a large number. Many times the red blood count may increase above normal, usually indicating that further transfusions are not needed at the time.

Dr. Robert D. Hart, Peoria (closing): With reference to diphtheria innoculations of 100 units, often the outbreaks occur in the underprivileged classes. When there are ten children in one family exposed to and on the verge of coming down with diphtheria at the time the Public Health officer or the doctor is called in, a working method is necessary. One may be able to get all the family together at once and maybe not again. This may obviate another outbreak. With 1000 units we believe the bad effect from horse serum is outbalanced by the fact that the outbreak is checked.

NEW SYNTHETIC FEMALE SEX HORMONE

A new synthetic female sex hormone, octofollin, is effective in the treatment of female climacteric or change in life and appears to be relatively nontoxic in contrast to diethylstilbestrol, another synthetic female sex hormone which has been in use lately, according to the statements in two reports in *The Journal of the American Medical Association* for October 2. Alvin Ray Hufford, M.D., Grand Rapids, Mich., from the results he obtained in treating 21 women, says octofollin, when administered by injection into a muscle, was effective and nontoxic. Harold K. Roberts, M.D.; Ellen Loeffel, M.D., and Cyril M. MacBryde, M.D., St. Louis, obtained similar results in 44 women treated. They administered it by mouth.

Only female mosquitoes bite to suck blood; the males get all their nourishment from plant sap.—*Science News Letter*

Clinicopathologic Conferences

J. J. Moore, M.D., Department Editor.

PRESENTATION OF CASES BY
MARION C. CORRIGAN, M.D.
and WILLIAM BRAMS, M.D.
Michael Reese Hospital
CHICAGO

CASE 1 — AMYLOID CONTRACTED KIDNEY

Dr. William Brams: B. M., a female patient 24 years old, admitted to Michael Reese Hospital, states that she had been well until her pregnancy, 18 months before. At that time her blood pressure was found to be elevated. The course of the pregnancy was stormy and was terminated, near term, by Cesarean section. Since then she had had severe headaches, and for the past month, nausea and vomiting. She lost 25 lbs. in weight, was very thirsty and recently noted palpitation, dyspnea on exertion and nocturia.

Past History: The patient had had scarlet fever, swollen cervical glands and bronchitis as a child and osteomyelitis of the right hip with suppuration at the age of 11. Repeated operations, during the next three years, resulted in fusion of the right hip and shortening of the limb. Some form of kidney trouble with edema and ascites developed at the age of 17.

Physical examination: Many operative scars were noted at the right hip. Blood pressure 215/140 was more or less fixed at this level on repeated examination. Examination of eye grounds showed indistinct discs and some retinal hemorrhages. Cardiac dullness was enlarged downwards and to the left, and the aortic second sound was markedly accentuated. The electrocardiogram showed very low T waves in all limb leads. X-ray of the lumbar region showed the kidneys to be of normal size and shape but no dye could be seen in the renal pelvis after intravenous pyelograms. The congo red test was negative twice. The blood chemistry showed: N.P.N. 66 and Urea Nitrogen 43. Moderate secondary anemia was present. The specific gravity of the urine was 1.010. A few white blood cells and casts and variable amounts of albumin were present.

The impression was that the patient had chronic glomerulonephritis with impending uremia. Some association was believed to exist between the renal disease and the previous osteomyelitis. The patient remained in the hospital until she was improved, after which she was discharged. She was readmitted about one month later with fever, cough and dyspnea of one week's duration. Examination revealed dyspnea, cyanosis, pallor, crepitant rales on both sides, blood pressure 220/158, and the above mentioned findings of the previous admission. It appeared that bilateral bronchopneumonia had developed. The blood nitrogen retention increased, stupor, and edema of the face developed, vision became worse and a to and fro pericardial friction rub could be heard. The patient became worse rapidly and died several days after admission.

DISCUSSION

It is apparent that this patient was in uremia. Fixation of the specific gravity of the urine speaks for inability of the kidney to concentrate. The variable amounts of albumin with only a few casts and pus cells and with *a good urinary output* speak for renal failure with an attempt

to eliminate toxic products by excessive volume output rather than by concentration. It is more difficult to assign a cause for this renal failure. The patient had had scarlet fever and some form renal disease seven years ago. Recent observations, extending over many years, have shown that nephritis due to scarlet fever usually results in complete recovery. Yet it is possible that this was an exception and that glomerulonephritis developed which became chronic. We cannot overlook the possible significance of the chronic suppurative osteomyelitis which was present from the age of 11 to 14. This could easily result in *amyloidosis of the kidney* giving rise to a clinical picture closely resembling chronic glomerulonephritis. The Congo red test for amyloidosis is of value only when positive; a negative result does not exclude amyloidosis. The renal condition, severe as it was, was apparently well tolerated until the patient became pregnant. It is known that chronic renal disease and hypertension are frequently tolerated poorly during pregnancy, and that the renal condition may be greatly aggravated. This seems to have been the case here. The final blow was given by the pulmonary infection, resulting in rapidly progressive renal failure, intensification of uremia and death.

The clinical impression is: Uremia due to renal failure. Renal failure may possibly have been due to chronic glomerulonephritis but chronic amyloidosis of the kidney must be suspected very strongly on the basis of chronic tuberculosus osteomyelitis. Pregnancy proved a burden which the diseased kidneys could not tolerate, and final renal defeat was precipitated by pulmonary infection, resulting in intensification of the uremia and death.

Pertinent post-mortem findings: (Dr. Otto Saphir). The body was that of a fairly well-developed, rather emaciated white women, apparently about twenty-five years of age, measuring 165 cms. and weighing about 42 kg. The skin was ivory white, the lips and fingernail beds moderately cyanotic. There was slight edema of the face but none of the extremities. The right leg was about 5 cms. shorter than the left. In the region of the right hip and thigh and of the left shoulder and arm, were many irregular scars and keloids (residua of old fistulous tracts). An old midline abdominal incision measured 20 cms.

In the peritoneal cavity beneath this incision and between the omentum and the uterus were a few fibrous adhesions (old cesarean section). The right pleural cavity was almost completely obliterated by old fibrous adhesions. The pericardial sac contained about 150 cc. of a serohemorrhagic fluid.

The kidneys together weighed 160 gms. They were very firm, markedly reduced in size and identical. Their thickened capsules were stripped with some difficulty revealing irregularly, finely granular yellow-red surfaces. On the surfaces made by cutting the cortico-medullary markings were indistinct, the cortex markedly reduced in thickness. The parenchyma was reddish-yellow. The pelves were relatively large, the ureters normal. The bladder exhibited a few hemorrhagic mucosal areas in the vicinity of the trigone. These gross features were readily explained on microscopic examination which revealed most of the glomeruli to be converted into relatively acellular and avascular eosinophilic masses. (Figure 1). Others, less extensively involved, had thickened capsules or capsules adherent to tufts. The glomerular capillaries were markedly thickened and fibrotic. A few glomeruli were large and hypertrophic, their capillaries apparently permeable. The arteries were moderately thickened, the arterioles markedly thickened (Figure 2), their lumina narrowed.

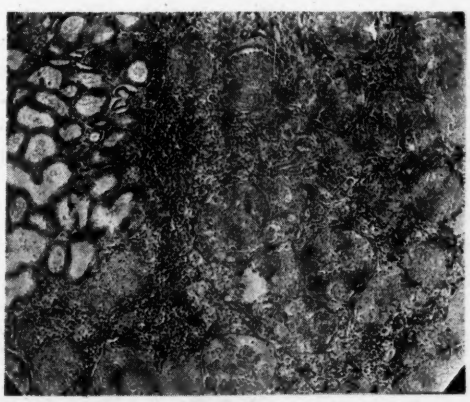

Figure 1. Case 1. Kidney. Note the transformation of the glomeruli into hyalin-like balls. Special stains reveal that the hyalin-like material is amyloid. (Hematoxylin-Eosin preparation).

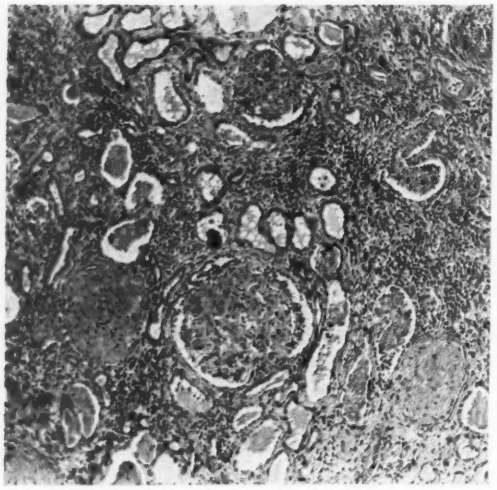

Figure 2. Case 1. Kidney. Note the early changes in the glomeruli, principally the deposition of the hyalin-like material surrounding the capillaries of the glomerulus. (Hematoxylin-Eosin preparation).

The tubules exhibited severe parenchymatous degeneration, and frequently contained hyaline casts. The eosinophilic material outlined the tubules in many instances. The interstitial tissue was increased, infiltrated by round cells and frequently isolated atrophic tubules. (Figure 3). Iodine and methyl-violet showed the eosinophilic material, which was in subintimal situation in capillaries and arterioles and under the tubular basement membranes, to be amyloid.

The pericardium was dull and covered in both the viceral and parietal leaves by a granular and fibrinosanguinous material. The enlarged, very firm heart weighed 475 gms. The chambers were only slightly dilated but the walls were markedly hypertrophied, that of the left ventricle measuring 2.1 cms., that of the right measuring up to 0.5 cms. The valves were normal. The reddish brown myocardium was seen on microscopic examination to be composed of markedly hypertrophied fibers with some parenchymatous degeneration. In a few foci they were replaced by fibrous connective tissue which was moderately increased in both perivascular and interstitial locations. The markedly thickened pericardium was vascularized and covered by masses of fibrin infiltrated by histiocytes, plasma cells and lymphocytes. The coronary arteries were slightly sclerotic, their distribution of the right predominant type. The aorta exhibited slight atheromatous changes throughout, most marked in its abdominal portion.

The right lung weighed 450 gms. In the apex was a retracted fibrous and calcified lesion. Fibrous adhesions bound the lobes to each other. The left lung weighed 475 gms. The upper lobes of both lungs were crepitant and emphysematous. The lower lobes were irregularly

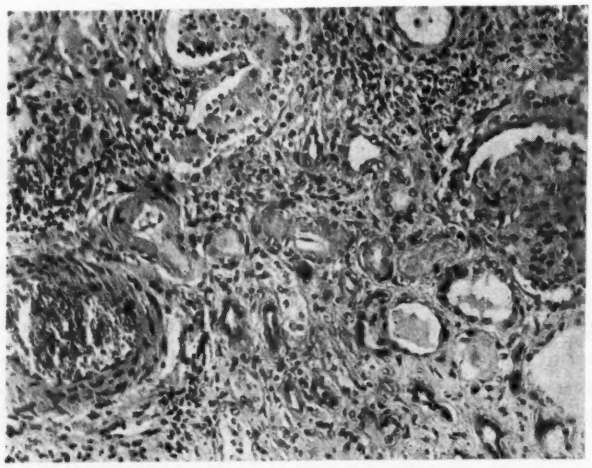

Figure 3. Case 1. Kidney. Note the thick walls of the small arteries. (Hematoxylin-Eosin preparation).

firm, very moist, and contained areas of bronchopneumonia.

The swollen fatty liver weighed 2250 gms. On microscopic examination, chronic passive hyperemia and parenchymatous degeneration were revealed.

The enlarged spleen weighed 325 gms. The pulp was scraped with ease. Whereas grossly, the pathology was merely that of acute splenic hyperplasia, microscopically, amyloid was revealed in the Malpighian corpuscles. Amyloid was likewise present as small and sparse deposits in the suprarenals.

There was some edema and hyperemia of the mucosa of the intestines, most marked in the terminal ileum and ascending colon. These changes, if features of uremia, were minimal.

The fallopian tubes were non-patent; the small uterus contained fibrous adhesions at the sight of a scar — cesarean. Other organs showed no changes.

The pathologic diagnosis was: Amyloid contracted kidneys; hypertrophy of the heart (marked); acute fibrinohemorrhagic pericarditis (uremic); hemorrhagic cystitis (uremic); edema and hyperemia of the mucosa of the gastro-intestinal tract; acute bronchopneumonia of the lower lobes; acute hyperlasia of the spleen with amyloidosis; healed apical tuberculosis; adhesive fibrous pleuritis, right; shortening of right lower extremity (history of tuberculous osteomyelitis of right hip); keloid scars in the regions of the right hip and left shoulder; old surgical abdominal incision (for cesarean section and sterilization).

Summary: At the age of 17 the first signs of renal impairment were those of a nephrosis. Some six years later, at the age of 22, coincidental with a pregnancy, this patient had marked hypertension, and terminally, at the age of 24, pneumonia precipitated uremia. At autopsy the finding of amyloidotic contracted kidneys and a fibrinosanguinous pericarditis substantiated the diagnosis of uremia due to renal failure. Bronchopneumonia involved both lower pulmonary lobes.

The hypertension was readily explained by the vascular alterations involving arterioles and gloreruli of the kidneys. Evidence of an old tuberculous process in the lungs and bones revealed the etiologic agent for amyloidosis. In that tuberculosis, especially of an "inactive or afebrile variety" had been present, the finding of amyloidosis in this young adult is not rare. However, for amyloidosis to produce a contracted kidney with cardiac hypertrophy and hypertension is rare. Only three such instances were found among the autopsy material of Michael Reese Hospital. Two of these had had marked hypertension. The adrenals in the third presented severe amyloid replacement, adrenal insufficiency probably accounting for the lack of hypertension. This, the fourth, is one of those "occasional instances of renal amyloidosis in which a definite hypertension developed that is presumably due to amyloid which causes narrowing of the glomerular capillaries and the arterioles of the kidney." (Bell).

CASE 2 — COR PULMONALE

Dr. William Brams: M. F., a female 59 years old, had had marked kyphoscoliosis since early childhood, but otherwise was in good health until 4 years ago. Since then she had experienced several attacks of weakness, insomnia, dyspnea, palpitation and orthopnea. A more severe attack occurred shortly before admission, at which time edema of the feet and legs was observed.

Past history: There was no history of rheumatism or tuberculosis.

Physcial examination: A dwarfed patient with marked kyphoscoliosis to the right. The temperature was 98°, pulse rate 104, respiration 30, and blood pressure 145/85. Crepitant rales were present at both bases. The heart was displaced to the right but no murmurs or arrhythmia were heard. The edge of the liver was 2 finger-breadths below the costal arch. Edema was marked in both lower limbs.

Laboratory findings: Blood serology, chemistry, and count were normal. Urine was normal. The electrocardiogram showed low QRS in all limb leads with inversion of T in leads 2, 3 and 4. Another curve taken several days later showed short periods of paroxysmal tachycardia caused by ventricular extrasystoles.

Course: Bed rest, digitalis, quinidine and sedatives failed to provide relief. She took a sudden turn for the worse several days after admission. Dyspnea increased markedly, blood pressure fell to 85/65, cyanosis became deeper,

and pneumonia was suspected. There were now drooping of the left corner of the mouth, thick speech, and periods of stupor. She became progressively worse, paroxysmal tachycardia developed, and she died about one week after the abrupt turn for the worse.

DISCUSSION

Patients with marked kyphoscoliosis seldom survive beyond 45 or 50 years of age. Death is usually due to cardiac failure but, what might be called "pulmonary failure" plays a very important role. Both the cardiac and pulmonary difficulties are still reversible in the earlier stages if suitable orthopedic treatment can correct the chest deformity.

The convexity in marked kyphoscoliosis is unusually to the right which means that the left side of the chest is markedly compressed, resulting in minimal respiratory excursion of this side, and displacement of the heart to the right with some kinking of the large vessels. The right side shows pulmonary emphysema with large alveoli but atrophy of their walls and reduction of the vascular bed. Bronchitis and bronchiectasis are usually present and interfere with gas exchange in the lungs by producing excessive secretion in the alveoli and finer bronchioles. The frequent and incessant coughing spells add to the strain on the right side of the heart. The total volume of the lungs is very small; often infantile. It can readily be seen that pulmonary difficulties are marked as a result of the almost rigid, small chest; infantile sized lungs and chronic inflammatory changes due to chronic bronchitis and bronchiectasis. All of these provide burdens on the right side of the heart which hypertrophies to maintain its efficiency in the face of these obstacles. Poor ventilation and other factors result in coronary sclerosis, a very frequent complication in kyphoscoliosis. Eventually the burden becomes too great, the heart fails, all its reserve is used up, recovery is incomplete or of short duration and the patient dies of a combination of pulmonary failure, coronary sclerosis and irreversible myocardial failure.

The clinical impression is: Marked kyphoscliosis, small lungs, compression of lungs in some areas, emphysema in others, and chronic brorchitis and bronchiectasis and terminal pneumonia. To these must be added coronary sclerosis, myocardial degeneration and failure. The mental symptoms could be due to cerebral anoxemia from cardiac failure or to intercurrent cerebral complications.

Pertinent post-mortem findings: (Dr. Otto Saphir). The body was that of a poorly developed and poorly nourished white woman appearing to be about 60 years old, measuring 135 cms. in length and weighing approximately 38 kgms. The thoracic cage was markedly deformed because of a distortion of the spine. This presented a right convex kyphoscoliosis of the thoracic vertebrae and a left convex scoliosis of the lumbar vertebrae. Both scolioses were very marked and at an acute angle. The skull was rather large in proportion to the size of the body. No other bone deformity was noted. There was marked cyanosis of the lips, ears and nail-beds. The finger tips were enlarged and clubbed. A two plus edema of the ankles was present.

The abdominal cavity was small, the pelvis rather deep. The pleural cavities were small and empty. A few fibrous adhesions bound the upper lobe of the right lung to the thorax. The left pleural cavity, however was much larger than the right. The heart was displaced to the right. The serous surfaces were smooth and glistening.

The heart weighed 250 gms. It was markedly enlarged in its right portion and rather firm. The right chambers, especially the ventricle, were dilated. The myocardium was definitely hypertrophied, that of the right ventricle measuring up to 0.5 cm. and of the left, 1.3 cm. in thickness. The coronary ostia were patent, the arteries severely sclerotic and narrowed, especially within the first few centimeters of their aortic origin. The distribution was of the right predominant type. The myocardium was red-brown, occasionally streaked with white. On microscopic examination, hypertrophied myocardial fibers were noted beneath a thick subepicardial fat layer in the right ventricle. There was some increase of interstitial fibrous connective tissue. This, however, was more prominent in sections from the left ventricle. Hypertrophy was very conspicuous in sections from the right atrium. Intercalated discs were conspicuous. The aorta showed a moderate arteriosclerosis throughout with many atheromatous plaques in the abdominal portion.

The lungs were soft and emphysematous. Emphysematous bullae were scattered along the

margins of the anterior surfaces. On sections made by cutting, there was moderate hyperemia of the lower lobes which were firmer than the slate grey, more billowy upper lobes. The trachea and bronchi were filled with mucus. The branches of the pulmonary artery were slightly thickened. Microscopic examination confirmed the gross impression of emphysema with marked compression of alveolar capillaries and some arteriosclerosis.

The liver weighed 675 gms., the kidneys 200 gms. Both showed marked chronic passive hyperemia and parenchymatous degeneration. All the organs were abnormally small but with the above exceptions were normal.

The pathologic diagnosis was: Kyphoscoliosis of the vertebral column; marked deformity of the chest; pulmonary emphysema; hypertrophy of the right ventricle (cor pulmonale); severe coronary sclerosis; myocardial fibrous (slight); chronic passive hyperemia of the lungs, liver and kidneys; cloudy swelling and atrophy of the liver.

Summary: This 59 year old white woman had had a very marked kyphoscoliosis since early childhood, most probably on the basis of severe rickets. Despite the deformity of the thoracic cage this patient was in good health until four years before admission when she developed symptoms of "heart failure" which gradually increased.

An interval of four years elapsed between the first manifestation of so-called "heart failure" and death. The symptoms of the "heart failure" were largely respiratory — dyspnea, orthopnea, insomnia, (palpitation). In view of the length of the interval preceding death, the diagnosis of heart failure at that time might be questioned. White considers such symptoms, "often wrongly interpreted as early failure", to be due to the underlying disease, which in this instance was emphysema with some pulmonary sclerosis.

Here "cor pulmonale" was the result of long-standing thoracic deformity, productive of an emphysema which probably was initially compensatory. Compression of the pulmonary capillaries increased the pulmonary pressure and induced the cardiac hypertrophy. Death in this instance was due to congestive failure provoked not by any intercurrent infection but by senescent alterations in the blood vessels and myocardium. Death from congestive heart failure in cor pulmonale is somewhat unusual, the majority of the casualities being from the pulmonary disease and at an earlier age. The relative longevity of this patient is remarkable, as pointed out by Dr. Brams.

LIVING TWINS BORN TO A WOMAN WITH A DOUBLE WOMB

Although more than 100 cases of women having two wombs and several instances of pregnancies involving one or both of such wombs have been reported in medical literature, Major Alexander Braze, Medical Corps, Army of the United States, reports in *The Journal of the American Medical Association* for October 23 what is believed to be the first instance of a successful termination of simultaneous pregnancies of double wombs with living infants. In the case reported by him, one baby was a boy and the other a girl. The twins were normal and were living at the time the report was made.

There is another aspect of the educational influence of the health services. We have finally found that there is no use opening the doors of American schools and then crying out that we are offering free education to all on the same terms, if many of our children come to these schools so ill-fed, so ill-housed and so ill-cared for that they are unable to profit from the instruction which is given to them. Equality of opportunity means equal opportunity to live up to what you have. This equality of opportunity is denied to many of the children who attend our schools. There is definitely a difference of function between the health service and those of other agencies. When children who are attending our schools require better food, when they require adequate clothing, and when they require medical or surgical attention, it is proper for the schools to recognize that such services are the primary function of other agencies. It is essential that every means be brought to bear to see that these children receive attention from appropriate sources. That is the way of democracy. But the way of humanity demands that when all other avenues have been explored and there is no other means to correct the defects which a child possesses, then the school services should be privileged to undertake this action. Realism demands that the children be given their chance no matter what agency may be primarily responsible for it. John L. Bracken, Supt. of Schools, Clayton, Mo. Jour. School Health, Nov. 1942.

★ **BUY ANOTHER BOND** ★

Industrial Health

Committee On Industrial Health — Frederick W. Slobe, Chm., 2024 South Western Ave., Chicago, Frank P. Hammond, H. A. Vonachen, R. I. Barickman, C. O. Sappington, Milton H. Kronenberg.

STANDING ORDERS FOR NURSES IN INDUSTRY.*

It has long been held essential that an industrial nurse have standing orders available. The Council on Industrial Health of the American Medical Association has prepared an excellent booklet covering this subject. This booklet is so worthwhile that we are publishing it in full in this section.

Obviously such standing orders must be general in their scope and for this reason, treatment is not considered in detail. It is for the plant physician to supplement these standing orders with more specific instructions.

For some time the medical and nursing professions have been concerned about the employment of nurses in industry without adequate medical supervision. The Council on Industrial Health has therefore been requested to formulate standing orders for industrial nurses which can be adapted to meet the requirements of individual industrial medical departments. If no responsible industrial medical authority exists, it is recommended that the nurse request helpful instruction in this regard from the committee on industrial health of the appropriate county or state medical society.

GENERAL RELATIONSHIPS

Standing orders represent a preliminary understanding between physician and assisting personnel about routine conduct of a medical service. In establishing such orders in an industrial medical department, several considerations need to be borne in mind:

1. The greater the amount of personal supervision exercised by the physician directly in the industrial environment, the better is the industrial health service.
2. Standing orders cannot be written to meet every situation likely to arise in industry. They must be modified to meet specific requirements and in accordance with the training and professional competence of the assisting personnel. They should be signed by the supervising medical authority and posted prominently in the medical department.
3. The nurse in industry should assume no responsibility for service outside the field of her professional training. This applies particularly to individual case management, from which the nurse should rigidly abstain except:
   (a) In emergencies demanding immediate independent judgment and action.
   (b) Procedures of preliminary or first aid nature routinely required by reason of the nature of the work and which are clearly stipulated in the standing orders.

This statement confines itself mainly to these last named aspects of mediconursing relations in industry. Additional reports on other functions of industrial nurses will follow as needed.

EMERGENCY PROCEDURE IN INDUSTRY

General principles which operate in all emergency situations apply to industry as well. They are:

1. Call a physician immediately.
2. Stop bleeding.
3. Restore breathing.
4. Prevent shock and infection.
5. Do no more than is actually needed.

The supervising physician should assure himself that these instructions are thoroughly understood and should institute special training when necessary. Nurses in industry should qualify as first aid instructors.

Emergency Supplies. — Emergency packs with essential sterile supplies should be available at all times in the medical department and in first aid kits suitably located throughout the plant. Regular inspection is necessary.

Hemorrhage. — Bleeding calls for immediate attention. The nurse should notify the physician and, until he arrives, proceed as follows:

1. Expose the wound.
2. Remove obvious foreign matter.
3. Apply pressure.

Direct manual or bandage pressure firmly applied over sterile gauze packing at the bleeding site will effectively control moderate hemorrhage. Indirect compression is indicated in excessive bleeding not controllable by direct methods. Digital compressions over

*Reprinted from The Journal of the American Medical Association, August 28, 1943, Vol. 122, pp. 1247-1249.
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the vessel against underlying structures either adjacent to the wound or at the nearest pressure point will usually suffice until the physician arrives. Indirect pressure should be applied proximal or distal to the wound, in keeping with the arterial or venous character of the bleeding. Hemostats or clamps should be applied whenever the emergency warrants it.

Avoid applying a tourniquet if possible. If severe bleeding in an extremity suggests the use of a tourniquet, apply a blood pressure cuff.

The nurse should remember that:

1. A direct pressure bandage should not act as a tourniquet.
2. A tourniquet must be periodically released at least every fifteen minutes.
3. No dressing should be applied over a tourniquet.
4. Asepis must be observed at all times.

Asphyxia. — Cessation of breathing from any cause demands:

1. Artificial respiration *at once* and *at the site of the accident.*
2. Notification of the physician.
3. Maintenance of body warmth. Avoid excessive heating.

All industrial nurses should demonstrate ability to apply artificial respiration by the prone pressure method and should realize the need for its continuous application until breathing is restored or until careful repeated medical examination advises otherwise.

Shock. — Early and adequate shock treatment is life saving. Do not delay.

Common symptoms of shock following injury are pallor, perspiration and rapid thready pulse. Emergency management by the nurse should include:

1. Notification of the physician.
2. Removal of cause. If shock is due to hemorrhage, control it. If it is due to trauma not associated with bleeding, all active treatment of injury should be deferred until shock management has been instituted. Wounds should be covered with sterile dressings to prevent infection.
3. Relief of pain: 1/6 to ¼ grain (0.010 to 0.016 Gm.) of morphine sulfate, repeated if necessary, or barbiturates as routinely ordered except in injuries to the head or trunk.
4. Keeping the patient warm, dry, and on his back with his head low. Avoid overheating.

ROUTINE NURSING CARE OF INJURIES

Successful medical management of industrial injuries depends on:

1. Prompt treatment.
2. Meticulous cleansing and dressing.
3. Examination of deep as well as superficial structures.

To accomplish these aims the routine functions of the nurse should be confined to care of minor wounds as follows:

1. Protect wound with sterile gauze while adjacent area is cleansed with soap and water or solvent.
2. Discard protective dressing and clean wound margins.
3. Irrigate wound with sterile water or isotonic solution of sodium chloride.
4. Apply antiseptic of physician's choice.
5. Apply dry sterile dressing, interfering as little as possible with function. Sterile dressings should be covered with protective material for use at work. The worker should be instructed not to remove the dressing but to return to the medical department if it becomes loosened or uncomfortable.

The nurse should do no more than is actually needed. The following conditions require direct medical supervision:

1. Wounds requiring débridement.
2. Those with obvious or suspected involvement of deep structures.
3. Wounds with edges which do not approximate.
4. Wounds about the head and face.
5. Contaminated wounds requiring tetanus prophylaxis.

Management of Common Injuries.—Injuries most likely to be encountered in industry include the following conditions:

1. Abrasions: Clean and apply dry dressing. Extensive or deep loss of skin, especially about the fingers and hands, needs medical attention.
2. Contusions: Treat with cold compresses directly following injury, later with moist heat. If soreness or disability persists or if deep involvement is suspected, refer to the physician.
3. Lacerations: Clean and apply dressing as directed. Any possibility of injury to joints, nerves or tendons should be brought to the physician's attention at once.
4. Puncture Wounds: Puncture wounds through the skin need direct medical supervision to avoid or treat severe infection. If superficial, clean and apply sterile dressing.
5. Slivers and Splinters: Penetration through the skin by slivers or splinters always carries the risk of an infected puncture wound and should be treated as such. Those lodged superficially and easily removed without added trauma or incision may be extracted aseptically by the nurse.
6. Burns and Scalds: Clean minor burns with soap and water. Apply petrolatum or 5 per cent boric acid ointment, bandaging firmly without interfering with function. Leave blisters alone.

   In all other cases:

   (a) Notify the physician.

   (b) Cover the burned area with a sterile dressing or sheet moistened with isotonic solution of sodium chloride or 5 per cent sodium bicarbonate solution.

   (c) Combat pain and shock.

In the absence of specific orders, chemical burns should be treated by irrigation or immersion in water for at least twenty minutes and then by dressing.

7. Sprains and Strains: Treat first with cold compresses, elevation of the part and rest. A physician's advice is necessary regarding strapping, other methods of support or fixation, further examination or special therapy.

FRACTURES

Preliminary steps for the nurse are:

1. Call a physician at once.
2. Keep the patient quiet and warm.
3. Immobilize before any movement is attempted.
4. Do not attempt reduction.
5. If the fracture is compounded, cover the site of the fracture with a dry sterile dressing. *Do not cleanse or reduce.*

Special instruction in splinting should be provided every industrial nurse.

EYE INJURIES

Rigid aseptic technic must be scrupulously observed in all eye conditions. Never attend consecutive patients without sterilization of instruments and careful hand washing. Remember that early symptoms of infections simulate foreign body.

Minor Burns.—Do not apply ointments to minor burns of the skin about the eye. Apply a sterile dressing and refer to the physician.

Burns of the Eye.—1. Chemical Burns: Irrigate chemical burns of the eye *copiously* and *at once* with water, preferably by immersion. Neutralizing solutions are usually inadequate or unavailable. The rapidity with which the irrigation occurs is more important than the type of solution used. Continue to irrigate at least twenty minutes by the clock.

2. Hot Metal Burns: Apply a sterile pad and refer at once to the physician. Do not irrigate. An anesthetic should be applied as ordered by the doctor.

Every burn of the eye should receive competent medical attention early.

Foreign Bodies.—The nurse should attempt to remove only those foreign bodies of the eye which can be readily located and which can be easily washed out or removed with a dry sterile cotton applicator. An antiseptic may be applied if the physician so orders.

Direct medical care is essential:

1. If the foreign body cannot readily be located. Stains to aid in the location of foreign bodies should be used only on specific medical order.
2. If removal requires any instrumentation.
3. If irritation or pain persists after removal.

No person with an eye injury should be discharged without examination by a physician.

"Flash" Injury.—First aid treatment should include:

1. Local anesthetic as ordered.
2. Cold compresses.
3. Sedatives.

Persistent pain following flash needs medical examination and treatment.

Conjunctivitis.—Conjunctivitis or other forms or conjunctival irritation should be referred routinely to the physician or ophthalmologist.

HEAD INJURIES

Until the physician takes over, the nurse should:

1. Keep the patient lying down.
2. Elevate the head.
3. Apply ice cap or cold compress. *No sedatives.*
4. Record pulse and respiration every ten minutes.

Clip or shave and cleanse areas adjacent to scalp lacerations, and cover with a sterile pad.

CHEST AND ABDOMINAL INJURIES

Contusions of the chest and abdomen with or without external evidence of injury may result in trauma to underlying organs.

Until seen by the physician, such patients must be

1. Kept warm and quiet.
2. Allowed no sedatives.
3. Have pulse, temperature and respiration recorded frequently.
4. Suitably bandaged to avoid contamination.

In case of abdominal injury give nothing by mouth.

NONOCCUPATIONAL ILLNESS

Treatment of injury or illness which has no relation to occupation is not a function of the industrial medical department except:

1. First aid for emergency sickness. Such measures as the situation demands must be taken until notification of the family physician discharges responsibility.
2. For minor ailments which temporarily interfere with an employee's comfort or ability to complete a shift and for the relief of which a physician would not ordinarily be consulted.

In all relationships of this kind, judgment and tact are required of the industrial nurse. Several principles apply:

1. Before giving any treatment, the temperature, pulse, general appearance and a history of the presenting complaint should be recorded.
2. Palliative treatment, especially for chronic or recurring disorders, should not be repeated.

Every properly trained nurse understands the difference between attention of this kind and systematic treatment.

CARE OF MINOR ILLNESS AND SYMPTOMS

Persisent or augmenting symptoms of irritation, discomfort or disability suggest faulty work environment. The nurse should not hesitate to ask for medical examination of workers and of the premises.

Fever.—A rise in temperature of 1 degree suggests medical consultation before work is resumed. Findings should be checked by repeated thermometer recordings.

Headache.—Record temperature. If headache is accompanied by dizziness, nausea, vomiting, stiff neck, injury, history of recurrence, fever, general malaise or other symptoms the patient needs medical attention. If not, give an analgesic as ordered by the physician.

Remember that headache or dizziness may be premonitory signs of intoxication.

Unconsciousness.—Fainting. Usual symptoms are pallor, with shallow breathing, slow and weak pulse. Period of unconsciousness is of short duration.

Keep the patient lying down with head lowered until fully recovered. Be sure the patient has plenty of

fresh air. Clothing should be loosened and stimulating inhalants used, such as ammonia or smelling salts.

2. Other causes. If other signs are present or if unconsciousness persists longer than a few minutes, call for medical assistance. *Give nothing by mouth.*

Toothache.—If there is a cavity, the nurse may pack it with cotton dipped in oil of cloves for temporary relief. For further examination and treatment refer to a dentist.

Nosebleed.—Spontaneous nosebleed may be treated by cold packs or pinching the sides of the nose against the septum. Keep the patient sitting erect or standing and loosen the collar if it tends to constrict the neck. Advise the patient not to breathe or blow through the nose for an hour or two after bleeding has stopped.

Bear in mind that certain occupational exposures are manifested by nasal damage and bleeding.

Sore Throat.—Patients with sore throat may be given a hot saline gargle if they have a normal temperature. Do not "paint" the throat. Any persistent sore throat or one associated with fever needs medical care at home.

Respiratory Irritation or Infection.—Repeated or persistent signs of bronchial or chest irritation without associated infection suggests an unfavorable occupational exposure. A plant hygiene survey is indicated.

Persons having acute respiratory infections with elevated temperature, cough, sneezing or nasal discharge should be sent home for proper segregation, rest and medical attention. In mild infections, work may be continued if under medical or nursing supervision simple measures will control symptoms and prevent spread.

Available medical evidence at the present time cannot support routine administration of cold vaccines or vitamin preparations as methods of reducing the incidence or severity of acute respiratory infections.

Frequent colds or chronic respiratory conditions require special medical consideration.

Abdominal Distress.—Early signs of occupational intoxication may be abdominal in character. In any case abdominal distress, nausea or pain, especially if severe or persistent, requires competent medical diagnosis and management.

Laxatives should never be dispensed from an industrial medical department.

Dysmenorrhea.—Painful menstruation not associated with fever or gastrointestinal disturbances may be treated with an analgesic ordered by the physician and the patient placed at rest with heat to the lower part of the abdomen. If there is no relief or if other signs or symptoms present themselves, she should be referred to her physician.

Patients with recurrent severe dysmenorrhea should not be given palliative treatment. They should be refered for examination and treatment.

DERMATITIS

Management of skin disorders in industry depends on cause.

Specific Irritants.—Materials or processes in the plant capable of causing skin disease should be identified and special orders provided for control. Competent dermatologic consultation is essential in all obscure or refractory situations.

Nonspecific Skin Disase.—Nonspecific skin irritation in industry is almost entirely assignable to faulty personal hygiene. The nurse can do much to improve washing routine, the use of dependable protective coverings, the wearing of clean work clothing, maintenance of satisfactory housekeeping in the plant and the general maintenance of accepted hygienic procedure.

PREGNANCY

A definite policy regarding employment during pregnancy should embrace the following recommendations:

1. The employee should notify the proper authority in industry about her pregnancy within the first trimester.
2. She should obtain a statement from her own physician —
   (a) That her work is not contraindicated.
   (b) Regarding the length of time she should work.
3. Special attention should be given to the nature of the work. Pulling, pushing and lifting must be kept within safe limits. Rest periods will tend to minimize emotional and physical instability during pregnancy.
4. Ordinarily work should terminate by the thirty-second week (within six weeks of term). If contraindications arise within this period, the employment should stop.
5. Return to work is inadvisable before six weeks after delivery and then only on notification of the employer by the physician.

EQUIPMENT AND SUPPLIES

Space which can command privacy and which can be kept clean and properly prepared for emergency and routine services by the nurse should be provided in the plant. Special attention should be given to heating, light, ventilation and accessibility.

FURNISHINGS AND SUPPLIES

General Furnishings:

1. Sink
2. Instrument cabinet
3. Sterilizer
4. Dressing table
5. Leg rest
6. Cot
7. Stretcher
8. Mirror 10 by 12 inches
9. Foot-pedal waste can
10. Waste basket
11. Storage cabinets
12. Paper towel rack
13. Adhesive rack
14. Record file
15. Scale

Instruments and Supplies:

1. Scalpels
2. Splinter forceps
3. Tissue forceps
4. Hemostatic forceps
5. Bandage scissors
6. Surgical scissors
7. Hand magnifying glass
8. Syringes
9. Assorted hypodermic needles
10. Assorted surgeon's needles
11. Needle holder
12. Assorted bandages
13. Adhesive plaster
14. Cotton
15. Applicators
16. Assorted sutures
17. Assorted splints
18. Assorted jars and basins
19. Test tubes
20. Safety razor and blades
21. Hot water bottle
22. Ice cap
23. Crutches
24. Tourniquet

Drugs: (as ordered by the physician or medical adviser)

1. A stimulant
2. An emetic
3. Analgesics and sedatives
4. Antiseptics

The accompanying check list of furnishings and supplies suitable for a small plant dispensary should be augmented by equipment for emergency treatment or other special medical requirements as ordered by the plant physician or other medical adviser.

REFERENCES

American Red Cross First Aid Text Book, P. Blakiston's Son Co., Inc., 1012 Walnut Street, Philadelphia.

National Research Council: Burns, Shock, Wound Healing and Vascular Injuries, Philadelphia, W. B. Saunders Company, 1943.

Sappington, C. O.: Essentials of Industrial Health, Philadelphia, J. B. Lippincott Company, 1943.

Division of Industrial Hygiene, U. S. Public Health Service: Manual of Industrial Hygiene, Philadelphia, W. B. Saunders Company, 1943.

Johnstone, Rutherford T.: Occupational Diseases, Philadelphia, W. B. Saunders Company, 1941.

Occupational Hazards and Diagnostic Signs, Bulletin 41, Division of Labor Standards, U. S. Department of Labor, U. S. Government Printing Office, Washington, D. C., 1941.

Wampler, Fred J.: Principles and Practice of Industrial Medicine, Baltimore, Williams & Wilkins Company, 1943.

Publications of the Council on Industrial Health, American Medical Association, 535 North Dearborn Street, Chicago.

(a) The Industrial Medical Department.
(b) Plant Hygiene Studies.
(c) Outline of Procedure for Physicians in Industry.
(d) Women in Industry.
(e) Control of Common Respiratory Infections.
(f) Indiscriminate Administration of Vitamins to Workers in Industry.
(g) Recognition and Prevention of Industrial Dermatitis.

BELIEVE PENICILLIN OF VALUE FOR STAPHYLOCOCCIC MENINGITIS

Experiments Indicate Injection into Space at Base of Brain or into Spinal Canal Is Safe Treatment, Two Doctors Say.

Injection of penicillin into the spinal canal or into the space at the base of the brain which contains the cerebrospinal fluid will probably be valuable in the treatment of staphylococcic meningitis (infection with the staphylococcus of the three membranes which envelop the brain and spinal cord). Cobb Pilcher, M.D., and William F. Meacham, M.D., Nashville, Tenn., report in *The Journal of the American Medical Association* for October 9. Their statement is based on results obtained in animal investigations.

The two investigators found that injection of penicillin into a vein had little if any beneficial effect whereas "intrathecal treatment . . . with relatively small doses of penicillin greatly reduced the mortality rate (from 93 per cent in control experiments to 54 per cent in treated animals)."

The preventive possibilities of penicillin for staphylococcic meningitis were not encouraging. "The number of animals which recovered was greater in the groups in which treatment was begun after injection of staphylococci than in those in which treatment was begun before injection," Drs. Pilcher and Meacham report.

"It is significant that the cerebrospinal fluid cultures remained positive for several (or many) days even in those treated animals which recovered. This is in support of the now generally accepted concept of penicillin as a bacteriostatic (stopping growth) agent.

"At no time were any harmful effects attributable to penicillin therapy. . . .

"From our experiments it seems justifiable to conclude that intrathecal injection of penicillin is a safe form of therapy and to suggest that this method of treatment will probably be of great value in clinical cases of staphylococcic meningitis."

Their experimental study was undertaken as one of a series of investigations of the treatment of infections of the central nervous system and its coverings.

VISCOSE TUBING FOR TRANSFUSIONS

Because the cleansing of rubber tubing to be used for intravenous administration of blood or blood protein is difficult and incomplete cleansing is believed to be a major cause of pyrogenic or fever producing reactions, a heavy walled Viscose tubing (made of a synthetic substance) is used by Henry Naftulin, A. M. Wolf, M.D., and S. O. Levinson, M.D., Chicago, they report in *The Journal of the American Medical Association* for October 9.

They say that "in a total of 1,137 blood transfusions given through Viscose tubing the incidence of pyrogenic reactions was 0.64 per cent. This is a material decrease from the reaction rate encountered with rubber tubing."

The battlefields of the spirochetes are the blood vessels of the brain.—Fetterman.

News of the State

PERSONALS · COMING EVENTS · MARRIAGES · DEATHS

Edward A. Piszczek, Director of the Cook County Public Health Unit, has been selected by the National Foundation for Infantile Paralysis to collect information throughout the country on treatment of the disease.

William G. Hibbs, Associate Clinical (Rush) professor of Medicine, University of Illinois College of Medicine, has been appointed medical director of the Presbyterian Hospital, Chicago. He began his work on August 1.

Major H. Worthington, Superintendent of the Research and Educational Hospitals of the University of Illinois has been appointed to membership in the American College of Hospital Administrators.

Robert H. Hayes of Chicago, a member of the board of directors of the Tuberculosis Institute of Chicago, has been made Vice-President of the Mississippi Valley Conference on Tuberculosis.

Ogle County Medical Society held a meeting at Rochelle on October 22nd and elected the following officers for the ensuing year: President, W. E. Kittler of Rochelle; Vice-President, L. R. McDaniel, Polo; Secretary and Treasurer, A. R. Bogue of Rochelle; Censor, L. Warmolts, Oregon.

According to a dispatch from Naples to the Chicago Tribune of October 5th, Captain Fausto Ciulini, 6144 Kenneth Avenue, Chicago, second in command of the allied military government (AMG) in Naples, is overseeing measures to guard the health of the city in the wake of German destruction and withdrawal.

DR. MEYER AWARDED SILVER STAR

Capt. Alfred C. Meyer, Chicago, of the Army Medical Corps has been awarded the Silver Star for heroism and outstanding achievement in operating on wounded soldiers while under Japanese gunfire in New Guinea. He is said to be serving with the first portable hospital to be established by the Army. A portable hospital is understood to be one in which the medical equipment and supplies are so packed and arranged that in jungle warfare they may be carried forward near the front lines, if necessary, by hand.

PRISONER OF THE JAPANESE

The first direct word from Capt. Gerald M. Greenspahn, formerly of Chicago, since Nov. 27, 1941 was recently received by his family, indicating that he is being held as a prisoner of the Japanese in the Philippines in prison No. 1. Captain Greenspahn graduated from Northwestern University Medical School, Chicago, in 1935 and was staff physician of the American Hospital before entering the service.

MICHAEL REESE HOSPITAL UNIT IN ITALY

An army evacuation hospital built around the original Michael Reese Hospital Unit which was formed in Chicago is reported to have landed in Italy with the American Fifth Army. The hospital was immediately set up and can handle 1,000 patients and treat every type of casualty.

Hundreds of tons of equipment were landed with the unit, and the personnel includes specialists in every branch of surgery. Lieut. Col. Phillip A. Daly of Chicago is in command of the unit, and other medical personnel are as follows:

Major Alfred E. Jones, Chicago.
Major Manuel E. Lichtenstein, Chicago.
Major Samuel Perlman, Chicago.
Major Laurence M. Weinberger, Chicago.
Capt. Harry E. Barnett, Chicago.
Capt. Richard M. Bendix, Chicago.
Capt. David Z. Berger, Chicago.
Capt. Ernest D. Bloomethal, Chicago.
Capt. Joseph A. Carbone, Gary, Ind.
Capt. Melvin R. Cohen, Chicago.
Capt. Norman R. Cooperman, Chicago.
Capt. Sol Ralph Friedlander, Chicago.
Capt. Richard E. Heller, Chicago.
Capt. Harold Laufmann, Chicago.
Capt. Saul A. Mackler, Chicago.
Capt. Phillip M. Marcus, Chicago.
Capt. William H. Parker, Oak Park, Ill.
Capt. Alfred J. Platt, Chicago.
Capt. Arthur H. Schoenwetter.
Capt. Morris J. Shapiro, Chicago.
Lieut. Sol Z. Draznin, Chicago.
Lieut. Samuel H. Fraerman.
Lieut. Jesse G. Garber, Chicago.
Lieut. Wilbur Gordon, Chicago.
Lieut. Ralph R. Landes, Chicago.
Lieut. Samuel M. Marcus, Chicago.
Lieut. Manuel L. Stillerman, Chicago.
Lieut. Leonard A. Stine, Chicago.
Lieut. Leonard Weinstein, Chicago.

COMING MEETINGS

November 17 and 18 — "Nutrition in Wartime", Postgraduate Assembly sponsored by the Institute of Medicine of Chicago, Grand Ballroom, The Stevens Hotel, Chicago. Morning, afternoon and evening sessions. On Thursday evening the William Hamlin Wilder Memorial Lecture will be given by Russell M. Wilder, Chief, Civilian Food Requirements Branch, War Food Administration, Washington, D. C. His subject will be "Nutrition and the Human Eye."

Physicians, dentists, nutritionists and dietitians in the Midwest who are interested in problems of war time nutrition are invited to attend this Postgraduate Assembly at The Stevens. There will be no fees.

November 17 — Du Page County Medical Society — Elmhurst Community Hospital, Evening — Howard Wakefield, "Acute and Chronic Coronary Occlusion."

November 18 — Tri-County Medical Society — Monmouth — Afternoon and Evening. Robert S. Berghoff, "Heart Disease"; Warren H. Cole, "Gall Bladder Disease".

November 19 — Will-Grundy County Medical Society — 12:00 noon, Louis Joliet Hotel, Joliet — J. Ernest Breed — "Cancer of the Cervix".

November 23 — Macoupin County Medical Society — Evening.

November 26 — Will-Grundy County Medical Society — Leon Unger — "Allergy"

December 3 — Will-Grundy County Medical Society — Wayne W. Fox — "Pneumonia"

December 9 — LaSalle-Bureau County Society — LaSalle — 6:00 P. M.

December 10 — Will-Grundy County Medical Society — C. O. Sappington — "Industrial Medicine and the Private Practitioner."

December 7 — Vermilion County Medical Society — Evening, Danville — G. W. Post

December 7 — Fort Wayne Medical Society, Indiana — Robert S. Berghoff — "Left Ventricular Failure Verus Right Ventricular Failure."

December 14 — Kankakee County — Kankakee — Edward A. Pisczek — "Poliomyelitis".

MARRIAGES

Robert Pettibone Gilbert, Chicago, to Miss Anne Heneage of Oak Park, Ill., June 5.

DEATHS

Edward Lyman Brown, Bloomington; Northwestern University Medical School, 1894. Had practiced medicine in South Dakota eight years and came to Bloomington in 1903. Died following a heart attack on October 10, 1943 at the age of 79.

Ned Alvin Balding, Lincoln; St. Louis University School of Medicine, 1912. After graduating from medical college, he joined the U. S. Army and spent two and one-half years in the Philippine Islands. Was

a veteran of the Spanish-American War. Member of Logan County Medical Society and of the Masonic Order. Died suddenly, probably of a heart attack while driving his car on October 6, 1943, at the age of 57.

CLINTON G. BECKETT, Danville, retired; Medical College of Indiana, Indianapolis, 1905. Was walking along the Wabash River when he fell down the bank and into the river because of a heart attack, and died on September 18, 1943. He was 69 years old.

JONAS WHITTIER CARLISLE, Robinson; College of Medicine and Surgery, Chicago, 1897. Had practiced medicine in Robinson for nearly 50 years. Died following on operation on October 8, 1943 at the age of 75.

JOHN LOVELL CASS, Kankakee; St. Louis University School of Medicine, 1904. Practiced medicine in Aurora for 15 years before he joined the medical staff of the Kankakee State Hospital. Died following a coronary thrombosis September 22, 1943 at the age of 63.

GEORGE FOSTER FISKE, Chicago; Yale Medical School, 1883. Founder of Henrotin Hospital; member and one time president of the Opthalmological Society, member of the Loyal Legion and the University Club. Died October 18, 1943 at the age of 83.

ANDREW J. GOODWIN, Kankakee; Illinois Medical College, Chicago, 1907. Health officer of the village of Bradley and physician in Kankakee, for 34 years, died at St. Mary's Hospital, October 11, 1943 at the age of 64.

WILLIAM A. YOUNG, Springfield, retired; Washington University School of Medicine, St. Louis, 1892. Had practiced medicine in Springfield for 51 years; member of the "Fifty Year Club." Was surgeon for the B. & O., Illinois Central and Alton and C. P. & St. Louis railroads for many years. Died of a heart attack on October 6, 1943 at the age of 73.

NEW SULFONAMIDE BENEFICIAL FOR DIARRHEA OF THE NEWBORN

Succinylsulfathiazole Produced Remarkable Results In 11 Cases Of The Highly Fatal Disease, Two Indianapolis Doctors Say

Of 22 cases of neonatal diarrhea (of the newborn), 11 were treated with succinylsulfathiazole (a sulfonamide drug), with only two fatalities in the latter group, both of which are believed due to inadequate dosage of the drug, Allan H. Twyman, M.D., and George R. Horton, M.D., Indianapolis, report in *The Journal of the American Medical Association* for September 18. In the 11 cases in the control series there were four deaths.

"Outbreaks of epidemic diarrhea of newborn infants," the two physicians explain, "occurred in the fall of 1942 in Cleveland, Carlisle, Pa., Detroit, Toledo, Ohio, Dayton, Ohio, and Indianapolis. The disease is now appearing again in various parts of the Midwest. The disease is not new. It has occurred many times in the past in Europe as well as in this country. Infants afflicted are usually less than 1 month of age. Those weighing over 7 pounds are victims as well as smaller and premature infants. The latter suffer the greatest death rate. The onset of the disease may be sudden or insidious. In the former case the baby begins to pass frequent, watery, greenish yellow stools, vomits and has fever. It may be drowsy or irritable. The weight loss may be alarming, and dehydration within a few hours may be severe. Fluid replacement, blood transfusions, changes of feeding formulas or the addition of pectin agar to the formulas have no satisfactory effect on the outcome of the disease. The mortality rate is usually near 50 per cent.

"A milder type of the disease has been described. In this the stools are less frequent, the vomiting is not severe, loss of weight is slight or absent, and dehydration and fever may not be present. The recovery usually occurs in a week or ten days. . . ."

The two physicians say that they did not find a causative agent for the disease in the group of patients treated by them at Indianapolis. They explain that succinylsulfathiazole, a comparatively new sulfonamide, has been used chiefly in preparation of patients for surgery of the large bowel and for the treatment of bacillasy dysentery. They report that they have found no reference in medical literature concerning the use of the drug in neonatal diarrhea. "We offer no explanation," they say, "for the success of its employment, since no specific cause for the disease has been found."

In the 11 control cases they say that the average number of days of hospitalization for those who recovered was almost twice that of the infants treated with succinylsulfathiazole. The weight gain for eight days of infants treated with the drug was not matched in seventeen days by the untreated infants. There was a rapid reduction in the number of stools in twenty-four hours in those infants treated with succinylsulfathiazole in contrast to a very gradual reduction in the untreated ones.

P. R. N.

The Jocular Jingles of C. G. F.

by

Charles G. Farnum M. D.

Peoria, Ill.

SEASONABLE SONNETS
NOVEMBER

November opens doors to bleaker times,
All vegetation sleeps, the world is drear,
We do not chide the winds from colder climes,
It causes bugs and flies to disappear.
The day of Armistice comes once again,
Reminding us of war to end all strife.
Forlornest hope! For in the hearts of men
It kindled further hatred, loss of life.
The young folks revel in the snappy air,
The snow and ice to them a welcome treat;
Thanksgiving comes, instead of thankful prayer,
A holiday with far too much to eat.
November is the gloomiest of all,
Not winter yet but much too late for fall.

NEVER TOO COLD!

Outside a raw wind's blowing,
A fire indoors is glowing,
The glorious autumn is no longer here;
The air is sharp and chilling,
A prophesy fulfilling,
That boistrous winter time is very near.

A few snow flakes are flying,
The grass is dead or dying,
The sear brown leaves in sodden heaps are blown;
The cold is blood congealing,
Fate seems to be misdealing
When cutting winds o'er hills and valleys moan.

'Tis melancholy, dreary,
Most desolate and weary,
When bleak gray clouds are blustering overhead;
The wind is penetrating,
The cold is not abating,
Bare trees stand stark and naked like things dead.

I'm frozen and unhappy
In weather cold an snappy,
On sharp and frosty days I sneeze and cough;
Though temperature is falling
I hear a tempter calling —
I think I'll go and play a game of golf!

A very thin man met a very fat man in the hotel lobby.

"From the looks of you," said the fatman, "there might have been a famine."

"Yes," was the reply, "and from the looks of you, you might have caused it."

CYNICAL CINQUAINS

We toil
The summer through
With garden, flowers and lawn;
An early frost and all that grew
Is gone.

NOVEMBER

November is here,
We shed a sad tear,
We dolefully stand beside last summer's bier.

The trees are all bare,
There's frost in the air,
The dead leaves are tossed by the wind everywhere.

The north wind so bleak
Nips sharply our cheek,
A place that is snug we most hastily seek.

Though all is so drear
There's one ray of cheer,
We don't have to mow any lawns 'till next year.

GLOOM

My soul is filled with sadnes and with gloom,
I feel like one who's going to his doom,
    Hot tears in eyes are welling,
    My chest with sobs is swelling,
Some faithful friends today I must inhume.

The trees are bare, the sky is over cast,
We soon will face cold winter's chilling blast;
    A thing I greatly cherish
    Is now about to perish;
The doleful episode has come at last.

Existance will be dull and life be drear,
The world can offer little that will cheer;
    The moment is dramatic —
    I saunter to the attic
And put away my golf clubs for the year.

Professor Paresis having read that a vegetarian diet is best for those who would be beautiful, meekly suggests that is does not seem to have done much for the hippopotamus.

Someone said that of all the millions of species or living organisms on the earth the two about which most had been written were man himself and — the tubercle bacillus. Biological Aspects of Infectious Disease. F. M. Burnet, M.D. 1940.